# The Builder.

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## *The Coming Event.*

THE announcement of a General Thanksgiving Day and a State Procession to St. Paul's Cathedral has naturally led to a great routing out of old documents which might supply official precedents, and long quotations from contemporary descriptions of similar ceremonials during the past and present centuries, more or less interesting, but displaying all those discrepancies in the details which have ever been found, and ever will be found, unavoidable in accounts of a great public spectacle, by various eye-witnesses, however observant or truthful, placed in different positions, and deriving information where their own knowledge may have been at fault, from different sources. The "leading journal" led off, as might be expected, opening the ball with a reprint of the description of the procession of George III. in 1789, in the *Imperial Magazine* of that day, communicated by Sir Digby Wyatt, in which we were told that the Lord Mayor wore a *cloak* of *purple* velvet, which covered his horse as well as his lordship,—a piece of intelligence which might have misled the right honourable gentleman who now fills that high office into the unnecessary extravagance of wasting a considerable sum in Genoa velvet of that "Imperial" hue before he discovered, from less picturesque but more reliable authorities, that his predecessor was attired in his official *gown* of *crimson* velvet, as customary on such occasions, and which, as he could conveniently walk in it, could scarcely have been of such ample dimensions as would be inferred from the above description. The *Morning Post* followed suite last week, by a reprint of the report of the same ceremonial from its own issue of the 24th of April, 1789, principally remarkable for the tone of its politics at that period; and the *Daily Telegraph* of Monday last, extracted from the defunct *Morning Herald* the narrative of the procession of the Prince Regent from Carlton House to St. Paul's, on the 8th of July, 1814, to offer up thanks for the restoration of Peace, supplementing it with direct contradictions by the *Examiner* of the same date. We may ourselves venture to dispute the statement that "*After* the Royal carriage came two of the heralds in costume on horseback." Other accounts have appeared, and may yet appear in other periodicals before this number of the *Builder* can be in type, and the official programme of the forthcoming ceremonial probably simultaneously with our publication: we shall therefore not trouble our readers with repetitions of what nearly all must have perused during the last few days, but indulge in a little gossip concerning such subjects in general. In the first place, in illustration of our opening observations respecting the impossibility of relying on minute details in even official documents, we will refer to the state procession of Queen Mary, through London in 1553. Stowe, in his account, describes her Majesty as "sitting in a chariot of cloth of tissue, *drawn with six horses*, all trapped with the like cloth of tissue." Strype, on the contrary, says she was in "a litter," not mentioning horses; while Monsieur de Noailles, the French ambassador, who was actually in the procession, says in his official despatches, "The litter, covered by a canopy of cloth of gold, was borne by *two mules*, covered also with gold, and high upon it was seated her Majesty, dressed in a long mantle of cloth of silver, with a head-dress of silk;" therein again contradicting Stowe, who says she was "attired in a gown of purple velvet, furred with powdered ermine;" and also a MS. of the period which describes her as "richly apparelled with mantle and kirtle of cloth of *gold*, furred with minever and powdered ermines, having upon her head a circlet of gold, set with rich stones and pearls," which Stowe asserts was so massy and ponderous, that "she was fain to bear up her head with her hand." Here is circumstantial evidence with a vengeance! But "no more upon that head," as Dr. Pangloss has said before us. We could fill pages with such conflicting statements, to prove that the wisdom of our ancestors in these matters was not greater than our own, and that "errors" were not "excepted" in the accounts of the most ancient reporters, or, to speak more respectfully, the old gentlemen of the press. In pomp and splendour, however, there can be no doubt these Royal progresses infinitely surpassed those of modern days. In Nichols's accounts of those of Queen Elizabeth and King James I., the sense is almost wearied with the mere mental contemplation of the profusion of cloth of gold and silver in the dresses of the persons in the processions, the decorations of their litters or chariots, the very saddles and harness of the horses in some instances being "covered with cloth of gold, and furred with ermines, powdered," and in others with "crimson satin and velvet." Fuller, in his "Church History," commenting on the necessity for dispensing with the customary Royal procession from the Tower to Whitehall on the accession of Charles I., the plague being at that time raging in London, defends it also on the score of economy, as it would have cost his Majesty "threescore thousand pounds to be disbursed in scarlet for his train [*i.e.*, retinue; observe, *not* mantle], a sum which if then demanded of his exchequer would scarce receive a satisfactory answer thereunto." Sixty thousand pounds of the money of that day to be spent for scarlet cloth alone! Fancy the Right Hon. Robert Lowe receiving a little bill amounting to the relative value at present as one item only in the expenses of the 27th inst!

Queen Anne went seven times in six years to St. Paul's to return thanks on various occasions; and George I. for his peaceable accession to the throne of these kingdoms. We do not remember seeing it mentioned that George III. went *twice* in state to St. Paul's; the second time being in 1797, to return thanks for the great naval victories obtained by Howe, Jervis, and Duncan; the procession being diversified on that occasion by three artillery wagons containing the French, Spanish, and Dutch flags captured during the various actions, attended by many of the gallant officers and men who had served in those actions, from the admirals to the powder-monkeys, with detachments from the marines at Chatham and Portsmouth as guards of honour. With the exception of this interesting variation, these processions, at least from the reign of Queen Anne, being arranged according to precedent, resembled each other as closely as the two black boys, Cæsar and Pompey, who are known to have been "very much alike,—particularly Pompey;" and, therefore, although only one out of all, that of 1789, was to render thanks for the mercy of health restored, it is no more a precedent for the order of the procession, or the regulations of the military and police, than that of the Regent in 1814, the latest of these particular national solemnities. For the graphic illustration of them we may direct the attention of our illustrated contemporaries to a very fine engraving published in 1789, representing King George III. and family passing through St. Paul's Cathedral, which is lined with the grenadier companies of the Guards in the act of presenting arms, a copy of which ought, we imagine, to be found in the print-room of the British Museum; at all events, one may be seen framed and glazed in the Earl Marshal's Court at the Heralds' College. We may point also to another print representing the procession to St. Paul's on the Thanksgiving Day in 1713, which Queen Anne was unable to attend in person; and for the rabid archæologist, to a tryptych which was formerly, and, we presume, still is, in the possession of the Society of Antiquaries of London, representing King James I. and his queen, Anne of Bohemia, entering in procession Old St. Paul's, as it is stated, in 1616. This curious painting is engraved as a frontispiece to one of the volumes of Nichols's "Progresse of James I.;" and in his description of it he suggests that it was painted in anticipation of the visit of James in 1620!—a most amazing effort of imagination. We will not attempt to solve the mystery. It could not be misdated, and represent the procession in 1620, as James's Queen (Anne of Bohemia) died in 1619, and there she is in the procession. We will only undertake to assure our readers that an inspection of the engraving or of the original picture will not give them the slightest idea of the procession of Tuesday next, when we earnestly hope that the weather will not be guided by the precedent of 1789, on which occasion, to use the remarkable expression of a writer in the *Gentleman's Magazine*, it was most "*offensive*" to the general public, and the poor Guards, who were under arms as early as half-past three in the morning, the rain falling incessantly till noon, when their Majesties entered their carriage, and the sun came forth to greet them, and gild the refined gold of the royal liveries and equipages. The great gilt coach, however, which was built for George III., and first used in 1762, was not brought out on this occasion, so that there is a precedent for her Majesty's using what is commonly called the dress-carriage, in which she has latterly proceeded to open Parliament, drawn, we trust, as in the former instance by eight of the noble cream-coloured Hanoverian horses,—a sight worth seeing alone.

It may be expected the *Builder* should say something about the various constructions in the streets, and the ornamentation of the houses in the line of the procession. There will be no pageants; no angel in green blowing a trumpet; no Gogmagog and Corineus at Temple Bar; no Dutchman perched on the cross of St. Paul's; no Spaniard capering on a tight rope from the Cathedral to the Deanery; but there will be triumphal arches, we trust, tastefully designed, and something like uniformity in the decorations of the houses. Cloth of gold and silver, gorgeous tapestries, rich embroidery as of old, are not to be expected; but fine effects can be produced by colour and arrangement with much less costly materials. The grandest spectacle of all, however, will be the thousands of loyal and loving subjects who will throng those streets and crowd those houses to their roofs and parapets, personally to express their deep and genuine sympathy in all that affects the welfare of her Majesty Queen Victoria and her amiable family.

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**A New Infirmary in Southwark.**—The St. Olave's Board of Guardians have just decided to erect a new infirmary in their district, and have also resolved that the new structure shall be built upon the model of the St. Luke's Workhouse, in the City-road.

## CONVENTIONALISM IN SCULPTURE AND ARCHITECTURE.

BEFORE glancing at the relation of the subject we have been treating of to architectural design,* we may appropriately say a word as to the position occupied by sculpture, the art which forms to some extent the connecting link between painting and architecture, in reference to nature and realism. In regard to the imitation of nature, this art occupies a different ground, and is practised under different conditions from the art of painting. The object here is to repeat and reproduce form as it really is, not as it appears under certain conditions and from some particular point of view. So far, then, it is direct, literal imitation of nature; the shaping of a solid bulk of material, instead of the suggestion of bulk by lines and shades upon a flat surface. Now, why not pursue the *vraisemblance* by investing the form, thus wrought out, with the actual hues and colour of nature? It is not altogether an idle question, because arguments have been brought forward, and may be again, by men of ability, in favour of such a treatment. The answer is twofold. In the first place, no imitation of natural colour and detail can, as before observed, be absolutely successful. We cannot, even with the more delicate resources of the painter's art, rival nature in her infinite minutiæ. Still less could this be accomplished by any such colouring process as would be possible on marble or other such hard and durable substance, and when every portion must be equally finished, and no devices of artificial shadow can be resorted to in aid of the effect. Yet it is just in this case that failure would be most glaring, owing to the very fact that the form is literally reproduced, which would bring into more relief the coarseness and comparative failure which must characterise any further and closer attempt at imitation. And if we could succeed in this, the success itself would be the greatest of failures, so far as the real aim of art is concerned. Imagine, in place of the orthodox white marble, a collection of images with flesh and draperies painted in imitation of the reality. The poetry of the art would have fled, and we might almost as well be in a waxwork exhibition. And the cause of the failure would be simply this, that the attention of the spectator would be directed so much to the success of the mere imitation,—so much, too, of the common realities of life would be suggested by it,—that little scope would be left for the contemplation of the work as an exponent of the higher expression and ideal of which the human form may be made the medium. By abstracting certain elements of reality, by limiting the imitation to that of form expressed in an artificial medium, we leave the sculptor's creation in a world of its own; we separate it in execution from the trickery of mere mechanical imitation, and in idea and association from the material realities of life, and leave it an abstract embodiment of the poetry of form and figure and action. Absolute mimicry of life in sculpture has not, we believe, been attempted by any civilised and educated artist; but the move made by our late distinguished countryman, Gibson, was a hazardous step in this direction, and one which we must be thankful has not been followed or carried further by succeeding artists. His professed object was to relieve what he had persuaded himself was the monotonous appearance of white marble: this would have been a good reason for choosing another material, or for adding a little decorative colour, perhaps, to certain of the accessories, but not for entirely colouring so beautiful a natural material, and impairing the delicate lustre in high lights which forms one of its chief charms. In fact, however, the celebrated Venus of the '62 Exhibition was an evident aim at the indication of flesh tint, and was only saved from something perilously near to vulgarity by the fact of its stopping considerably short of the full colour and tone of nature.† Laying aside the question of applied colour, the treatment of sculptural subjects requires to be carefully adapted to the material, and to the conventional expression of which alone, in its untouched state, it is capable. This is a point, again, which has been overlooked in some popularly admired works of modern sculpture. The now well-known "Reading Girl" (to revert to another of the '62 examples), was an instance of this. So realistic a work in sculpture was a novelty, and found worshippers accordingly; but the rumpled dress and rush-bottomed chair were really out of place (the latter especially); because, in the first place, it is not worth while to spend so costly and durable a material, and so much labour, in working out such commonplace forms; there should be a *dignus vindice nodus*,—the best marble is well expended in perfecting the delicate contours of a beautiful figure, but not on dress and furniture; and, in the second place, these accessories were out of keeping artistically with the material. The chair was a realistic imitation of a commonplace article of furniture, thrust into a composition the very material of which removed it completely from real life. In a realistic painting the chair would have been well enough; in a conventional material like marble a conventional or ideal seat was required, not merely for the sake of beauty, but to avoid the confusion of two different classes of associations. This is a solitary instance; but the application, as we hope our readers see, is a wide enough one.

But in sculpture we are not limited entirely to the conventionalism of material or accessory. Under certain circumstances we may conventionalise the figure itself; we may eliminate some of the delicacy of contour and detail in nature, and substitute a simpler and grander line, a more massive and "built up" figure, so to speak.* This is the case to some extent with some of the finest antique statues, in which (as the able superintendent of the art classes at the London University has been pointing out recently) the anatomy differs materially from that habitually seen in the "Life" studio. But the cases in which conventionalism of form has been, and may be, justifiably carried to any great extent in sculpture, are almost invariably those in which the sculpture is to be used in close connexion with architecture. It is in this view that we referred above to sculpture as the "connecting link" between architecture and painting. The extent to which it may become so is exemplified in the Egyptian sphinxes and colossal sitting figures, of which, situated as they are in intimate connexion with the architectural design, it would almost be difficult to say whether they really are more sculptural or architectural in character. The same remark, perhaps, would apply to the Assyrian winged bulls, and in a considerable measure also to much of the sculpture of the Mediæval buildings. All these are specimens of sculpture designed and executed, not for its own sole interest as a central object, but as subordinate to a total architectural effect. In regard to their position, the *life* is more or less petrified out of the figures; they are reduced to an architectural stiffness and rigidity, so as to appear not so much figures added to the architecture, as portions of the architecture which have taken the type and some of the form of living objects. We are thus led, through sculpture, to architecture, and the manner in which we are so led is suggestive. We see that in proportion as we approach architectural art, in that proportion do we quit nature, and quit the representation of living sentient form. Architecture is, of all the arts, the conventional art—the one which deals with principles and types of nature, instead of natural form. Accordingly, we could not use the higher forms—*sentient* forms, as we have termed them—of nature, as a portion of architectural design, without so altering them as to lose much of the sentient character, and even then we can only reduce them to a kind of neutral position. But if we descend from the sentient to the inanimate forms of nature—from the animal to the vegetable kingdom,—we find that we are then able to use the natural form as an integral part of the decoration of a building, with much less alteration or conventionalising than in the other case. In all these cases, indeed, conventionalism is requisite, were it only in regard to the nature of the material in which the ornament is to be executed, and which is almost always of too coarse a texture to render with any fidelity the minutiæ of nature. But the relation between the ornament and the general design of the building has to be considered also. In a style in which, as in the Gothic, the general outline and character of the building may suggest somewhat of the irregularity and picturesque outline of nature, we can compound with a very near approach to nature in the small ornamental details; but even here those specimens of Gothic foliated ornament in which nature is decidedly conventionalised, though imitated in general form and type, are the most satisfactory to the judgment. In a style which, as the Greek, is completely rigid and artificial in its main outlines and composition, a much higher degree of conventionalism is requisite to render the ornament in keeping with the building; and the nearest approach to nature in this style, the Corinthian capital, is in fact highly artificial; while in that masterly and almost unequalled architectural feature, the Doric capital, the conventionalism is so complete, that we almost lose sight of any natural type at all; and were it not so, the feature would be, however elegant, too weak for the heavy and severe treatment of the general structure. In the ornamental detail of the Renaissance period there is much admirable conventional treatment, quite in keeping with the general character and expression of the buildings it was designed to adorn; the defect of the ornament of this period lying not in its intrinsic manner, but in the sameness of treatment and want of thought in its working out; defects very characteristic also of a great deal of modern Gothic ornament. But it is important to observe how universal has been the rule, in all the architectural decoration which has been recognised as the most beautiful and successful, of avoiding direct copying of nature, and especially of sentient nature. In this respect the carving of birds and animals in the capitals of piers, initiated in some early, and imitated in some modern Gothic work, is a mistake, partaking a little of that kind of art which belongs to a half-civilised period. Such carvings, if allowed, must be looked on as part of the architecture, as mere additions to it; the restlessness and activity which we connect with the bird and the hare will not suffer such representations to blend with the immobile character belonging to architectural design. But surely it is more satisfactory that all detail that can be called architectural should appear as part and parcel of the constructive design, rather than as a picture affixed to it. In this respect the Greeks were right in the treatment of their *antefixæ* of so-called lions' heads, conventionalised heads, of which Mr. Ruskin in one of his lectures made sport. It might be a question whether any semblance of an animal feature was in place at all there; but there can be no question that, if it were used, it was right to conventionalise it, to bring it into harmony with the artificial character of the architecture, rather than to have the most life-like realistic model stuck on as an impertinence. We may mention, as a similar example, the conventional ornament, suggesting a winged lyre, in some of the internal capitals of the Paris Opera House. A realistic resemblance would have been commonplace; but the designer has cleverly managed to suggest this appropriate idea, while entirely preserving the proper character of carved architectural detail. Before quitting this subject it may be observed that in conventional decoration, as in conventional painting, there is an interest beyond the mere beauty of the feature employed, arising from the evidence of thought displayed on the part of the designer, and of his peculiar mode of looking at the thing. Thus, though the Corinthian capital is a more elegant and richer object than the Doric, yet the latter will probably always be regarded as the most interesting by the architectural critic, on account of the more subtle thought displayed in its treatment. To the same cause we may trace much of the interest of the beautiful Saracenic school of ornament, where every feature of natural form is discarded, and where only the metaphysical beauty of nature,—that which springs from order, proportion, repetition, variety of contour,—is made the basis for that endless play of fancy on the part of the designers which has given this school of ornament so high a place in the history of decorative design.

The consideration of conventionalism as applied to architectural ornament suggests also a word in reference to one or two forms of art which can only be used in conjunction with architecture, though distinguishable as separate arts. In the treatment of stained-glass ornament, a good deal of very good work has been done of late years in England, if not elsewhere. But in the treatment of figure-subjects in this

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* See p. 97, *ante*.

† It may be doubted whether any representation of the nude figure in sculpture, so coloured as to be decidedly imitative of nature, would not be pronounced, in the present time and country, an offence against good taste, even by those who would never dream of supposing such a charge to be valid against similar works in the virgin material. Habit may have a good deal to do with this; but on æsthetic ground, at all events, the instinct which would prompt the objection is correct.

* "This is *building* a man, not drawing one," said some one to Fuseli, on seeing him sketch in a figure with chalk, in his peculiar energetic hyperbole of manner.

material there has been little real success, failure having resulted from two opposite misapprehensions in the mode of design and treatment. The naturalistic German school have erred in attempting the perfect realisation of the natural figure in a medium in which such realisation is absolutely impossible; the result being obvious failure, and an impression of coarseness and vulgarity of treatment. As to the attempts of the Munich school to paint landscape and distance on their windows, that is a kind of thing which we are totally unworthy to denounce, and for which the English language supplies no strictly Parliamentary terms at all adequate to the occasion. But in the English school of glass design, on the other hand, a mistake has been made in the opposite direction. The necessity for conventional treatment has been perceived, but it has been sought for in the adoption of the stiff, misshapen angular figures of the Gothic period. To treat the figure thus is not to conventionalise, but merely to distort it. However the artist may depart in such a case from the freedom and flow of line and attitude in nature, he is bound, nevertheless, to preserve perfectly the true balance of the figure, the true relation to each other of all points of the construction; the process of conventionalising in this case must merely take the form of a simplification, not a falsifying or contradicting, of nature. Unfortunately the modern glass designers have become very generally possessed with an idea that all which the Mediæval men did was right, and we have had but few attempts to conventionalise the figure on true principles; for which the best hints might be found in some of the designs of Flaxman. The principle applies to mosaic; and here the true treatment of the figure has been better recognised, chiefly because in the most important attempts in this art which has been made in England, the work has been in the hands of really able and educated artists. Yet there has not been wanting a demand, openly made by some of our architects, for a return to the completely rigid and stiff forms of the early Byzantine mosaics, which, in fact, have been reproduced in all their archaism in sundry reredos decorations in college chapels, and elsewhere. The demand is an unnecessary, not to say an absurd, one; the material, when used in suitable positions, and at the requisite distance from the eye, not demanding more than a certain severity of line and dignified breadth of composition, to bring it completely into harmony with the exigencies of the case, and with the relation which the mosaic picture bears to the architecture in which it is set. The totally unnatural treatment demanded for it by some would only be necessary if the mosaic were as much an integral part of the architectural design as are the winged animals of Nineveh and Persepolis. But it is not so: its unique texture, if not its brilliant colour, prevents its becoming so: it is simply an indestructible picture set in an architectural framework, and demands only so much conventionalism as will preclude it from presenting a harsh contrast with the lines of the architectural design, or with the evident restrictions imposed by the material.

Such are a few of the reflections not unnaturally suggested by a consideration of the manner in which Art deals with the natural forms and objects which compose the language by which she speaks to our feelings and intellects. The principle of conventionalism,—the question how near, in each language of art, we may safely or desirably approach to direct imitation of nature,—affects every method in which men have endeavoured to realise ideal beauty. The versified drama is in itself one great conventionalism; and we have it on the authority of one of Goethe's biographers, that when the author of *Wilhelm-Meister*, in his earlier days, superintended the production of tragedies at the Court Theatre at Weimar, so impressed was he with the importance of preserving the conventional consistency of the drama, that he would allow little action on the stage, and scarcely permitted the performers pointedly to address one another, regarding them simply as media for the delivery of the author's ideas. This was perhaps overdoing conventionalism, even if we allow for possible exaggeration of the narrator; but the story is interesting as suggestive of the view of this form of art taken by the man who, of all great poets, seems to have possessed the artistic and critical faculties in the most evenly-balanced proportion. The precise preservation of proportion between realism and conventionalism has been rarely achieved in art. In the bas-reliefs of the Parthenon we may see it, perhaps, in perfection, and in some of the Greek plays more perfectly than in any poetry, even that of Goethe, since. Giotto appears to have attained the perception of it more perfectly than most of the great painters, falling short only in technicalities of execution; Raffaelle in some of his noblest works, though not universally. Among modern English artists Mr. Leighton and Mr. Watts seem to have hit the mean more nearly than most others. To the English public the very idea of conventionalism as an important element in art is for the most part a thing as yet unthought of; how far this is the case we may conjecture from the total ignoring or misunderstanding of the subject evident in a large proportion of the writings put forth as "art-criticism:" it is fair to conclude that the writers of such criticism are in the main in advance of their readers, hard as such a conclusion seems to be as against the latter. This and cognate subjects in connexion with art are not likely, however, to be widely understood among us until this most uncritical of civilised nations awakes to the perception that such matters really are worthy of serious study and thought, and that there is more in art-criticism than a mere question of liking or disliking.

## THE QUEEN'S PROCESSION TO ST. PAUL'S AND FINE ART.

IT would be not a little curious to find out, were it possible to do so, in how many ways, and in what special ways, modern "improvement" is in advance of the old ways of doing things in by-gone times. One thing is certain, that we are getting rid of what are called time-worn "prejudices" and old-fashioned modes of amusement and getting rid of time. *Formalities* of all kinds are going out of date, and most of them, as the famous "processions" of past times, are now almost unknown. The modern world of business is too much occupied for such trifles and waste of human energy and time; it has something better to do, and certainly something more profitable. But the days were, when not only were processions, Royal processions, and others, of very great and absorbing public interest in themselves, but they were the foundational ideas on which a good deal of the fine art and sculpture of those times and countries were built up and found their origin. Modern enlightenment and extended education, as they are thought to be, have a natural tendency to ignore such things, both the things themselves and what they are so well fitted to encourage. Modern education means "book learning;" but in times before a "book" was all-in-all, and the *description* of a thing or an event almost of more importance and interest than the thing or event described, a great procession from one spot or building to another was a notable event, and the occasion of bringing before the eyes and senses of the multitude not only graceful and brilliant costumes, but graceful and mentally impressive action. And not only were these improving and artistic doings accomplished with human beings and costumes, but opportunity was offered for the display of fine animal life, as is to be seen in the Parthenon frieze of Greek times, and in the triumphal procession of the Emperor Maximilian in the Dark Ages. These old processions and displays also gave opportunity for showing "improvements," if that be the word, in carriages and chariots and cars of different kinds. Indeed, in the old ways of doing these things, there will be found to occur perpetual opportunities for the exhibition and portrayal of objects of use and ornament which served to record the then state of the fine and useful arts. But these things are, it is to be feared, of the past, and but little likely to return, except perhaps by fits and starts;—an unfortunate circumstance, for where things are so rarely done they are likely to be done but indifferently well.

We are led to these thoughts on the old methods and ways of life, and the fine art which followed from it, by the rare and unusual occurrence of a Royal procession to St. Paul's. It would be impossible to imagine a case wherein things could well be in a more inadequate state of preparation; and it may be of some interest to hint at a few of the things needful, and at the differences between one of the old antique and quaint processions of past days and this coming modern one; and the great questions naturally present themselves: How is it to be done? what is the apparatus with which to do it? what is its artistic value, if it have any? and can anything be done with it artistically afterwards by way of record of the event which it commemorates? But, first, a word on the old processions, such as the Greek carrying the "Peplus" to the Temple—shown so accurately and completely in the Greek frieze in the British Museum—and which gave the sculptor Phidias his work. In that world-famous "procession" everything was evidently ready, and thought was had to the beauty of the work and to its artistic completeness. The *forms* we see plainly enough, and that fine horses, fine chariots, and fine men and women—not shut up in close carriages—made up the beauty and interest of it. As far as forms went, we know all about it, but the *colours* we can only guess at, though feeling sure that they must have added to the beauty everywhere present in it. Nothing could well have been added to increase the effect produced, and intended to be produced, on the minds of the spectators; and, to complete the charm of the whole, the Temple itself to which the procession walked, and the gateways to it, and the whole of the buildings on the way, were, as we see by the remains of them, worthy of the great art-loving race who produced them. It would be impossible to find, all the world over, a finer or a more glorious artistic embodiment of a national thought. Can *we* do anything in any way approaching to it? Have we any idea of a procession in a fine-art sense, and as expressive both of a national thought and an artistic way for carrying out that thought? Money, certainly, we have in sufficient abundance; money, more of it than the old Greek would ever have dreamed of. May we mention, as an instance of its plenty, that no less a sum,—we speak from personal knowledge,—than 700*l.* sterling has been offered and refused for the windows of a house in St. Paul's Churchyard commanding a good view of this very procession. But what is there to see, we may ask? Where is to be the artistic element in it? It is curious to note these things, and to look at them by an antique light. In our "Lord Mayor's Show" so curious a compound of show and glitter, and manners, and shabbiness, there is, as all know, the gilt coach itself, the only artistically quaint thing in it, the smart and new sheriffs' carriages, the mounted band, and, what is more than all, as a telling part of it, the City companies' banners, borne by the shabby-looking watermen. All the rest of it is made up of the ordinary dull-looking vehicles seen everywhere, and of attendants in little else than ordinary costume. Will Tuesday's procession be better or worse than the Lord Mayor's Show?

It is perhaps only by contrast that we can come to anything like a fair estimate of the probable value of such a display, and of its artistic significance. We would therefore call to mind the fine old Middle Age procession, called the "Triumph of the Emperor Maximilian." The plates representing it were exhibited at one time at the South Kensington Museum, on the walls of one of the passages, and gave a good and true idea of what the men of the Middle Ages thought a triumphal procession should look like. Everything is firmly and carefully designed, and the *harmony* of the whole is most complete; for the dresses, carriages, horse furniture, banners,—indeed, everything in it, go to make up a complete and harmonious whole. It may well be contrasted with the Greek procession,—so unlike it, yet both so artistic and descriptive of the times that produced them. Can we do anything like this Maximilian Triumph, the Greek way of work being out of the question? If we can, then will there be something to go out to view, irrespective of those exalted personages whom all London will be delighted to see; if we cannot, then may we ask, what is modern art, and are we in advance of the dark ages, or behind them, in matters artistic? Why, the fact really is, that the powers that be are at this moment thinking about what to do, and how to do it; and no man, in spite of an advanced education, can afford any sort of answer. We may also note in this place how differently, in different ages, men record things. In the old Greek days Phidias commemorated the procession of his time in enduring marble on the walls of a marble-built temple, dedicated to Wisdom. In Maximilian's day they left a record in fine and bold drawings, which it would be for us impossible to rival. In the days of Queen Victoria, in this art-enlightened nineteenth century, any one may buy a "view of the Lord Mayor's Show,"—a coloured one, too,—for a penny. We have one by us at this moment, and can but advise every curious reader to buy

one as well; for, we can assure him that it will be sold on the coming procession-day as a veritable representation of the Queen's progress! Who shall say that these are not *art-loving* times, with plenty of opportunities, and a whole world of competent executive artists to do the work, and a "Royal Academy" to exhibit it to the public, and Government schools to teach it!

But, again, can nothing indeed be done to make this procession, so notable in many ways, a little interesting and expressive? Can it be made artistic? Can it be made worth the trouble of recording it in any sort of material,—in marble, or stone, or wood, or even in the smallest of wood blocks, to be sold for a penny? Surely it is a test, and a fair one, of our art-capacity and power of meeting a new difficulty, and if possible mastering it. Comparatively very few people will see the procession itself, and still fewer the inside of the cathedral, and what is to go on there; but all might see adequate representations of it. The difficulty is twofold; to wit, to make the show itself worth the looking at, and then to *represent* it afterwards. If we might be permitted to offer a hint or two about it, it would be,—to include in it important personages, to keep the procession as close together as possible, and not to leave large blank spaces between carriage and carriage; and, above all, not to blot the whole show with a number of shut-up, close, dingy-looking vehicles, always somehow or other to be seen in such-like displays of processional fervour. It is unfortunately only as a passing crowd that such a show as this can be of interest, for to go into *detail* in any way would be to abandon the subject altogether. There can be no artistic workmanship or design in it. No one expects it, or *can* do so; it would seem to be altogether out of or beyond the power of the age we live in. But that such should be the fact, is surely to describe the age as one in which the condition of practical art and fine art is not over-satisfactory.

## THE PROCESSION AND THE PUBLIC SAFETY.

IT will not be amiss on our part to direct attention to the character of a portion of the constructive preparations making for the event of Tuesday next. Up to the hour of writing these remarks we have journeyed twice over the entire route of the intended procession. We have been more concerned in our examination of those erections which have been and are being put up for the support of vast numbers of people, than those designed for pleasing effect, and the results of our observation may be simply stated.

There are some of the timber platforms or stands which do certainly not err on the side of strength, and there are others of very faulty construction with supports of not sufficient thickness in scantling. There is yet time to add to their security. Among the number of strong and substantial "stands" covering a large space, and calculated to accommodate several hundreds of people, may be instanced those occupying the frontage of the New Law Courts in the Strand, those at the junction of Fleet-street and Ludgate-hill, the Old Bailey, and those on either side of the Viaduct. Some large stands are being erected in Hyde Park, on each side of the carriage-drive near the Marble Arch. The platforms put up in front and at the side spaces of several of the churches in the line of procession in the Strand, Fleet-street, Ludgate-hill, though possibly secure enough, in consequence of their not having a very great depth, and being, moreover, protected in front with railings and their stone bases, are in other respects not very commendable specimens of constructive ability. The time to see them was when in course of erection, and when the scantling was naked, and not now, when their whole front view is hidden from sight with boarding. It is not our wish to cause any alarm; yet we are anxious to point to defects capable of remedy. In constructing public platforms or stands for the support of human weight averaging several tons, tier upon tier, there is one consideration, and an important one, that should not be overlooked. A *dead* weight is not only to be provided for; but, in addition, an active moving vibrating weight. The axiom that the strength of a body is only equal to its **weakest part**, holds unalterably true also in regard to a roof or a timber platform. When a "stand" receives its living cargo, throughout the whole time it bears, it has also to resist strain: so it is most essential that the strain should be counteracted sideways, or from front to back, by strong cross diagonal bolted bracing timbers. Now, in the majority of instances we have examined, the diagonal bracing is of a very inferior description, and bolting is the exception, not the rule. Cut-iron spike nails, and cut iron nails large and small, seem to have been the most in requisition. We took the trouble of examining the bolting of a few of the platforms, and we found that bolts were driven in, but not through, as no nuts were to be observed. The object obtained in this instance is obvious, but a simple spike nail of good quality would have been more honest and secure. The carriage or bearing pieces of public stands of the large dimensions we are describing should not be mere planking, but heavy timber; and the flooring for the seats should never be under 1½ in. or 2 in., and even then the bearing pieces should not be distant. It is nothing less than criminal folly to act according to the common opinion, that because a thing is for a temporary purpose any sort of construction will answer. If private individuals wish to speculate they are at liberty to do so, but there ought to be circumscribed limits to speculating at the cost of other people's lives. Given a large area, a guinea a seat would pay well a speculator in the building trade for the cost of his venture on his own account, as his timber would turn in again for use very little the worse for wear. At some of the clubs half a guinea the seat is found to pay all the cost.

We notice that the platforms surrounding some of our churches are ostensibly put up for the purposes of charity, the proceeds being intended for objects in that direction.

From the Holborn Viaduct to the Marble Arch there are hardly any available vacant spaces or waste grounds on which stands can be erected. In consequence, the householders and shopkeepers are making the most they can of their windows. Some have taken their windows out altogether where they were large, and have erected seats within the rooms tier on tier in first and second stories. In old houses this is rather dangerous work.

St. Paul's is, of course, as the chief point of interest, well attended to in the matter of space; every available angle of sight will be utilised as the piles of timber construction erecting within and without, as we write, testify. Here, at least, one expects to find structural security; and, so far as it has gone, there is no reason to complain. Every possible care has been shown.

The tall timber structure, the two piers of which enclose the stone obelisks, at the foot of Ludgate-hill, and which is intended as a triumphal arch, is strongly and firmly raised, and the heretofore unsightly iron railway bridge is getting a coat of bronze, and the City arms are being made conspicuously golden. A wooden roofing or canopy is raised above the bridge, and the aspect here and around, above and below, will be a most enlivening, though a rather overcrowded one.

The painting, festooning, and decorative part of the preparation on the entire route, have begun, but will of course be the last in hand. These works are not sufficiently advanced, as we go to press, to allow us to speak of them in detail.

We would again impress on all concerned, the necessity for the utmost caution, and the Police Commissioners and the City authorities would do well to act in unison, and with the advice of competent professional men, as to the security of the public erections in several parts on the line of route.

To be forewarned is to be forearmed, and there cannot be too many precautions adopted on this most exceptional event, for the preservation of human life and the public safety.

## THE POLICY OF PUBLICITY.

AN architect and member of the Institute writes to us as follows:—

"Do you think that a few remarks publicly made will have any effect on the Council of the Royal Institute of British Architects, with regard to the publication of the papers read at their meetings? There used to be a pleasure in reading the lectures in your paper, a few days after they were delivered, when all came fresh to one's mind, was looked for with interest, and made a greater impression upon the memory than when delayed. But now all interest is gone. A lecture was delivered on January 22nd, and only partially printed by you, which I should have liked to read in full, and no doubt many others had the same liking; but up to this day, Wednesday, February 21st, no copy has reached me; and what interest I felt at the time has now quite passed away. The excuse cannot be on account of the time taken to print, because most of the lectures are given from the printed copy. Why do *you* not print the lectures, as formerly? I can hardly believe that the Council place any impediment in your way. It would be a great benefit, both to non-members as well as to members of the Institute, for you to publish the papers, and let the outer world know what is passing within the walls of the meeting-room. As to the Transactions, if the papers were printed in double column, instead of as they are now, they would be read with much more comfort, and readers would not run the chance of losing their place, in reading long lines, as in a lease, 'where one has to make use of one's fingers at each end of a line."

We have received a repetition of the inquiry why we do not print the papers in full from a friend of one of the lecturers who had, as the writer knew, enabled us to do so. The answer is very simple. In many cases we would willingly print the papers in full if we could do it immediately after delivery, and should do so, but we have received an intimation from the Council that they do not consider it desirable to allow the papers to be published by us *in extenso* before they are issued by the Institute. We are not about to quarrel with this decision,—conveyed to us in the most courteous terms, we desire to add, by the secretary of the Institute; but we must repeat the expression of our regret that such a policy still prevails there. We believe it to be short-sighted, narrow, and injurious,—altogether a mistake. We believe the Council would best fulfil their mission by seeking to obtain the widest possible publicity for all instructive papers connected with the profession and our art. It is not easy to find a sound reason for the opposite course. At one time it was said that publishing the papers in our columns lessened the chance of sale to outsiders of the Transactions issued by the Institute, but no one will venture to quote that as a reason now. There is no such sale under either arrangement. The sole reason, so far as we can learn, is that the members of the Institute may receive their own copy of the paper read before they see it in a public journal accessible to all; the result being, that information sometimes valuable is shut up and put away in a comparatively few houses, instead of being spread amongst the thousands. Other associations have learnt this truth, and act upon it. At the congresses, for example, held by the Social Science Association, the addresses by the heads of departments are put into type, and even before they are delivered are gladly supplied to the newspapers far and wide for reproduction.

Enough, however, for the present. As we have already said, we are not quarrelling with the Council on the subject of their policy. It is a question of judgment, and they have perfect right to an opinion on the subject. We desire, however, to state emphatically that we believe their judgment to be wrong, and we trust, speaking in the interest of the Institute, the profession, and the art, that before long better counsels will prevail.

## HINTS ON HOUSE BUILDING.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AT a meeting of the Institute on Monday, the 19th inst., a paper entitled, "Some Practical Hints on House-building," by Mr. Edward Roberts, F.S.A., was read. The reader said his desire was to invite attention to such subjects as these:—

1. Site, soil, and drainage.
2. Utilisation and disposal of water.
3. Artificial lighting.
4. Warming and ventilation.

After treating of the first, he spoke of the utilisation and disposal of water:—I may state that it is by no means uncommon for us to leave plumbers and other workmen to do as they please, and therefore, for want of consideration, we have supply-pipes to closets inserted in the same cisterns whence water is drawn for drinking purposes; soil pipes arranged so that they convey sewer-gas into the dwelling; and waste-pipes from wash-basins and sinks carried into closet traps, and although in the last case intermediate traps may be fixed, yet every time the closet-plug is drawn the draft on the pipe empties the trap, and allows the foul air to escape through

the pipes into the rooms. Mr. Seddon and others have taken up the subject of sewer-gas. In the other cases the remedies appear to be either to have separate cisterns for the supplies for the several purposes, or to have partitions placed in such a manner as that the drinking-water cannot be contaminated; and in reference to waste-pipes to carry them down separately into pipes free from sewage-gas. In cases where supplies are by heads of water, whether by public companies or privately, if the water be stagnant in the pipes, freezing and bursting are the consequences of cold weather. The remedy appears to be to have the supply-pipes laid with a general fall towards the mains, so that when the pressure is taken off the pipes may be emptied by gravitation; and disregarding companies' directions, to tie down ball-cocks to allow the flow to continue while the pressure is on, the straw bands which show distress in winter might then be dispensed with. In the case of unintermittent supplies, there seems to be no other method than packing with sawdust or hay-bands.

Rain-water in the country is of prime importance, but is usually a cause of much labour and expense, first to conduct it to tanks, and next to pump it to the places where it is wanted. I am unaware if any one has given a thought to this subject, except as to the form and ornamentation of gutters, pipes, and heads, and the description of force-pumps. I have found it more economical to provide for the water remaining where it falls, at the top of the building. I thus save the expense of the down-pipes and tanks, the pumps and rising mains, and, what is of far more importance, I avoid the labour of pumping it whence it came, and every one of us must know how great is the time and force engaged in that operation in country residences. I produce one or two plans where the cisterns are introduced in the roofs for rain-water. In that of Christ College, Finchley, not an ounce of the rainfall is allowed to escape; it is directed to a series of cisterns which supply the upper lavatories; an overflow supplies a second cistern, whence the lower lavatories are served. Should these not contain the whole of the fall, it overflows to a tank in the basement, it being desirable to retain as much as possible.

The cisterns contain over 9,000 gallons, and the tank, 1,500 gallons. In the tower is a cistern for hard water, which supplies the closets, and in times of drought the rain-water cisterns can be filled from the tower, but in only one season since its erection in 1860 has it been necessary to draw largely upon that source. I have invariably adopted this principle wherever possible, and I find it universally satisfactory.

It may be worth consideration how far the steam injector can be made available for filling cisterns. I have only once made the attempt, but abandoned it on account of the position of the cistern precluding the application of the injector, because of the water, when elevated, being also raised in temperature: the steam arising from it is objectionable, and the boiling would perhaps tend to limit the use of the water itself. In factories it would appear to be perfectly admissible.

Although I have been referring to rain water in the country, I am not sure that its use need be limited to rural districts. The storm-water in towns is a difficulty; perhaps if rain-water were to be stored it would obviate some of the troubles of sewer construction, and provide means for flushing in exceptionally dry seasons. The rain-fall on roofs in London, for instance, is probably one-sixth of the whole area; quite enough to make a sensible difference in the contents of the sewers, which are sometimes ruptured by the internal pressure of storm-water.

I pass now to the third part of our considerations—artificial lighting.

I am alive to the difficulties of the subject, and to the impossibility of saying any one thing authoritatively which may not prove in other cases to be wholly untrue and inapplicable.

I suppose it will be generally admitted that, as regards natural light, a skylight (except for very special purposes) is the worst light that can be adopted. It produces shadow from the person bending over any object; it causes cold in winter by the vertical radiation, and heat in summer by direct rays:—indeed, except where other light cannot be obtained, it is indefensible.

Admitting this, who will say so of artificial light? That it is inconvenient if placed overhead is certain, and not one of us but has felt the discomfort of such a light, and shifted our chairs in order to avoid the shadow of either head or hand,—and yet we constantly adopt it.

Does it never occur to us that whereas side-light in the case of daylight is the best and most convenient, artificial light from a similar point is equally proper? I believe that in our offices and libraries alone do we feel (and that I fear without *studying* the subject) that a lamp on our table, near to hand, removable at pleasure, and perhaps with the light deflected, and the eyes screened by a green paper shade, is approaching the perfection of light for use.

It has always appeared to me that every room should be lighted according to the uses to which it is to be applied:—a dining-room, for instance, should have a brilliant light, but soft on the table itself, with a softer light around the room, so that no part is gloomy, though absolutely free from prominence and glare; and, whether candles, lamps, or gas be the means, the light should be in the middle, somewhat akin to billiard-table lights, except as to the deflecting shades.

The mention of billiard-room lights induces me to give expression to my belief that, although, as a rule, no sufficient attention has been paid to other lighting, in that case it is nearly perfection, avoiding, as it does, shadow on the balls and cushions. Direct vertical light in other places may be unbecoming. I well remember the consternation and dismay said to have been caused to the Court beauties on the opening of the new ball-room at Buckingham Palace; and, whether true or not, this very fairly illustrates the position I take. The ball-room was at first mainly lighted by sun-burners; and the effects of the shadows from the ladies' brows, noses, and chins were such as to drive those sensitive creatures from the room. Since then candelabra and other lights have been introduced, and there is a feeble attempt to do that which, without knowing of that instance, I have frequently endeavoured to accomplish, but have not found my clients venturesome enough to indulge me,—namely, lighting by gas outside glass screens in the walls. If windows are the best lights which can be obtained, it seems to follow that similarly-placed artificial lights would be best at night. It would probably involve a great expenditure of gas, but the inside would be free from the damaging and uncomfortable effects of combustion.

* * * *

We now come to the final item in my list,—*Air*, and here I am aware I shall be met by every variety of favourite theory and practice. I have, of course, one of my own, but it is not universally applicable, nor even generally so, except with varying adaptations.

Ventilation is not properly understood by the public, and is repressed or prevented in almost every case where provision is made for it, by the papering up of gratings, and so forth. Ventilation to be perfect should be the admission, by the means we choose, of an equal amount of fresh and pure air to that extracted. As self-acting extractors I have frequently adopted Chowne's air-syphons in two positions; the one from near the ceiling, to withdraw the merely heated air arising from gas or other lamps, and the other from the floor level; the latter, invariably in places where large numbers of persons congregate, for the extraction of those impurities which cause discomfort; for, relatively, carbonic acid gas is heavier at equal temperatures, and falls to the lower strata of atmospheres. This must have been experienced by every one in such places as omnibuses with closed doors, and in the old-fashioned church pew; in such cases the opening of the door is an immediate relief from headache and oppression, and the drowsiness for which the sermon usually gets the credit.

The admission of fresh air is another matter not generally considered. How constantly do we find gratings fixed in skirtings at which fresh *cold* air is to make its entry, and it takes the opportunity of making itself known by almost cutting off our feet with its keenness, and rendering the lower limbs sensibly lower also in temperature, causing those catarrhs which we never know how we have caught. On the other hand, warmed air is as frequently admitted from gratings in the floors or through vertical pipes. In both cases the converse systems should be adopted. *Cold air should always be admitted vertically*, and, if possible, at a level above the shoulders of sitters. Cold air thus admitted will ascend several feet without departing from its columnar form. As it is the same with warm air, which, when admitted, we require at the very lowest part of the room, it follows that it should be *invariably admitted horizontally*, thus ensuring the benefit of its temperature and freshness, instead of receiving it, vitiated, after it has been up to the top of the room.

Mr. Roberts closed his observations by advising negatively:—

1. Never allow pervious drains in pervious soils.
2. Never allow a cesspool or drain near a well.
3. Never select gravel as a building-site if well-drained clay can be obtained.
4. Never allow drinking-water to be drawn from a cistern supplying a water-closet.
5. Never allow waste-pipes to be inserted into water-closet traps.
6. Never allow rain-water to run to the ground if it be required above.
7. Never allow water to stand in exposed pipes in frost.
8. Never allow pipes to be fixed so that they will not empty themselves.
9. Never ventilate except by pipes; inlets and outlets being equal.
10. Never use glazed earthenware pipes for upward flues.
11. Never allow chandeliers to be the exclusive light merely because it has been customary.

## DESIGNS FOR FOUNTAINS.

SOME time ago Messrs. A. Handyside & Co., of Walbrook, desiring to obtain a good design for a fountain, to be executed in cast iron, at the cost of 400*l*., invited a competition, and offered premiums of 30*l*., 10*l*., and 5*l*. for those considered first, second, and third in merit,—all of these to become the property of the manufacturers. By a special note "Gothic designs were not invited."

In reply to the proposal, thirty designs were sent in by the time named, January 31; and from these the Messrs. Handyside have selected designs by Mr. Hugues Protat, first; Mr. G. A. Illston, second; and Messrs. Batten & Edwards, third.

We are not moved to any warmth of expression by an examination of the drawings, which are for the most part of very ordinary character. Mr. Protat's design, which is entirely French in style, is to be executed forthwith, at a greater cost, we opine, if properly done, than the sum named. If the full-sized drawings are well made, the figures which constitute its chief merit finely modelled, and some improvement be made at the summit, where now stands an over-large vase, the result, we have no doubt, will be a very handsome fountain of its class.

## ON INVENTIONS CONNECTED WITH BUILDINGS.

ON the 1st inst. Mr. Banister Fletcher resumed the consideration of this subject.* In the course of his paper he said,—

I endeavoured on the previous occasion to show what we architects considered good and what bad; and, further, what we considered was still required. I thought I should by so doing provoke discussion, and therefore sound conclusions would be arrived at.

I then dealt in detail with thirty-nine subjects. On the present occasion it is proposed to limit the discussion to three subjects. The first (its importance demanding that position), the improvement of the dwellings of the people of this country; the second, health; the third, as relatively least important, the security from thieves of our houses.

To treat, then, of the least important first, I should mention that much attention has been directed to sash-stops and fastenings, and I have instructions from Colonel Henderson to make and report to him on all sash-fastenings and sash-stops that may be submitted to me, and that I am determined to try and find out every invention relating to this class. I have already inspected some inventions, and desire to see every invention and patent, with the earnest desire that my report may contain notice of every invention. When my report is sent to Col. Henderson, he will select a committee to sit thereon. I would mention to his praise, and to show how far in advance in this day are some of our officials, compared with those we read of in days gone by (which some still call the "grand old days"), that he has told me he will send a circular to the inhabitants of this great City, embodying the result of that investigation.

* See p. 24, *ante*.

It may appear to some a rather trivial matter; but if such could see the reports, they would understand that it is no such thing. The great proportion of the robberies of this day occur through the ridiculously easy method of obtaining entrance to houses by the simple application of the knife. I invite all present to help me to prevent this easy ingress. It is attributable chiefly to two causes, — first, the reliance we all place in the police; secondly, to the absence of shutters (the old security), or, if they exist, to their non-use. In ending this part of the subject, I would say any information sent to me and specimens shall receive my best attention, and will be reported upon. They must be sent me in the course of next week.

Surely this is a field in which the noblest efforts are required to make the homes of the people of England less of a disgrace to this country. I am sure if we only consider what home is,—how much time must be spent therein, even by the dissolute,—how thoughts and actions have their origin there,—we shall be led to reflect on its overpowering influence for good and evil. Well has the poet said:—

> "If solid happiness we prize,
> Within our breast this jewel lies,
> And they are fools who roam:
> The world has nothing to bestow;
> From our own selves our joys must flow,
> And that dear hut, our home."

But can any one imagine that the poet was alluding to such homes as I have shown exist? Much rather would the description which appeared in the *Builder* (p. 52) apply:—

> "This is the roof and the soaking rain,
> Dripping right through in search of the drain,
> In the new house that Jack built."

We next come to the second subject, and the last; and while it is, perhaps more than any other, occupying men's minds, I shall be very brief, and summarise only a few of the leading points.

1st. That the main sewers of this city and other large towns are most defective, and, in short, are but elongated cesspools.

It is useless for any man to make a statement unless he confirms his views. I will briefly do so, and show conclusively how defective at this day are our arrangements.

I quote from the minute of Mr. Robt. Rawlinson, C.E.

"By a return recently made relative to the sewers in West Derby, it appears that about eleven miles of public sewers have been constructed, and that in these sewers there are seventy-five ventilating-shafts. It is considered necessary for safety to the public health to ventilate public sewers at intervals not further apart than 100 yards, or eighteen ventilating manholes and grates in each mile of main sewer. This rule requires that there should be in the eleven miles of West Derby main sewers 198 ventilating-shafts, or 123 additional to those now in use. Rain-water spouts may serve to ventilate house-drains; but these should not be reckoned in reductions of main sewer ventilation. With means for sewer ventilation as indicated, the air in the sewers will be comparatively pure. There cannot be concentration or stagnation at any part of the system, and it is in concentration and stagnation that danger to health arises. With profuse ventilation there will not be perceptible smell at the ventilation-grates at any one point, as the dilution and dispersion of sewer-gas will be unceasing.

Foul smells and dangerous escapes of sewer-gas only take place from sewers inadequately ventilated. The West Derby Local Board has more fully ventilated the sewers of the district than many other local boards; but, to be safe, the additional number, as now recommended, should be constructed."

Wherefore, it would appear that the only remedy proposed is to give back to us to inhale diluted gas; and it is considered by doubling (about) the number of such outlets, the air may be comparatively pure.

It is often talked about what will that New Zealander say that Lord Macaulay invented, when he stands on the ruins of London Bridge. But what, I would ask, would our grandfathers say, if they could arise to-day, and find us not talking about getting pure air, but that all the vaunted science of the day, the ambition of the scientific world, seems to consider comparative pure air as the *summum-bonum*. And remember, this result is only to be obtained by great additional outlay.

Take, again, the *Times*, at the close of the long discussion in that journal, in a leader devoted to summing up the result:—

"One correspondent after another points out new danger, until the case of the average householder might well seem hopeless. He learns that no trap is to be trusted, and that he and his family are, in fact, separated from typhoid fever by but 2 or 3 in. of treacherous water. Even if some totally new arrangement of pipes would afford protection, it is not every one who is in a position at once to reconstruct the internal mechanism of his house; and it may as well at once be recognised that the idea of reconstructing the whole system of metropolitan drainage is for the present Quixotic. Are we, then, without any available means of escape from this terrible enemy of health, and must we submit to pay a certain tribute of lives as the condition of enjoying the decencies of life . . . . Our readers, it would seem, may all, at a comparatively trivial cost, provide themselves in very great measure with the protection of which we are all in search. To obtain a real additional guarantee against typhoid fever, would be well worth a definite and moderate expenditure, even if we cannot altogether exclude so invidious a foe."

To add to our misery, the *Saturday Review*, in a clever article on sanitary reform, says:—"What are now regarded as the best established conclusions of sanitary science may be discredited in a few years, and precautions supposed to be important to-day may by to-morrow have come to be accepted as essential."

There, then is a subject for the inventive genius. Next, the deduction I drew in the last paper was, that as it is impossible to return to the old cesspool, it behoves the engineer to find a remedy. Listen, again, to what the *Times* says:—

"It is plain that everything we wish to get rid of can be discharged out of the house, and there dealt with quite separately from the internal arrangements. It must have a ventilation, and that must be entirely distinct from the ventilation of the house. It has often been pointed out that it may be immediately subjected to a general system of ventilation by means of pipes and sewers conveying in ventilating shafts, carrying the effluvia high over our heads, above the level of gutters, cisterns, and soft-water supply. Why not? There was a time when there were no chimneys for smoke, but we have them now, many and tall. It is a mere affair of mechanism to bring every nuisance in this metropolis within the draught of public ventilation, and whether those ventilations be worked by steam, by furnaces, or by natural draughts, is only a small matter. Even if it costs something, it is as important a matter as water supply. Let it be considered that an *ordinary wind changes the whole upper atmosphere of this metropolis once every quarter of an hour*, so that an effluvium once transmitted to the upper regions *is effectually got rid of*. Its mischievous power consists in its lurking down below, or being actually confined in our houses. What we say is, that the object is quite feasible, and the men of science are sad impostors if they cannot tell us how it is to be accomplished."

I contend this is no remedy; it is merely repeating what was done with the sewers when cesspools were done away with. It was then said, "Use plenty of water, and send all into the river, and there's an end of it." We know to our cost how wrong that was, and most certainly in time we shall discover, if we follow this advice, that we shall have around and above a stratum of death-giving vapour.

I now proceed to the internal sanitary arrangements. The great defects I would point out are the frequent use of bell-traps, for the reasons I have explained,—the absence of ventilation of drains. Take the usual soil-pipe closets on each floor: it will surprise those who do not understand it, but if the soil-pipe is trapped at the bottom, the using of the bottom closet will often empty the traps above of all their water, and for the simple reason that "nature *abhors a vacuum*."

To show again how little this is appreciated, I do not suppose one in twenty of those who fancy they understand sanitary matters can say if the receiver in a pan-closet is air-tight; the fact being it is purposely pierced, as otherwise it would draw the water out of the pan. The result would appear to indicate great ventilation, to prevent *air-bound* pipes and to prevent foul air confined in the sewer forcing its way into the house.

The result then seems to be, as to drainage:—

1st. Plenty of ventilation.

2nd. If possible do away with the pan-closet, because of the receiver.

3rd. Improve the valve-closet, which at present is imperfect.

4th. Adopt D traps instead of the bell, until some better trap is invented.

5th. Find some means by which (no matter how long summer may last) evaporation shall not take place to such an extent that traps in areas and suchlike exposed positions shall cease to be traps.

It has occurred to me whether oil would not have the effect of preventing this evaporation; it is used successfully in gaseliers.

Next, as to ventilation in houses. I think for economy and for health the sash and frame I propose, made from my design, appear to combine those advantages which are requisite, namely, easy ventilation without draft. It is clear (at least, I quote from a very large experience) that no ventilation will be tolerated by the people where the slightest feeling of air coming in is felt. Another model I produce, which I invented many years since and have often employed, also giving the upward current which is necessary, and is so cheap as to come within the reach of all. I have used it for stables as well as for rooms.

Water:—There should be a constant supply. I have seen two self-closing taps that seem cheaper and to meet the requirements demanded by the water companies; but some tap is wanted which, while cheaper, shall be as effective, if not more so.

I close these few remarks with a quotation from *Punch*, because we may be sure if the comic papers treat upon such a subject it is much occupying attention. *Punch* is speaking to King Christmas:—

"'Let us heap on more wood, and while the roaring log emits its festive fireworks, let us drain a foaming goblet in your honour.'

'Let us heap on nothing of the kind,' said the old gengleman, blandly. 'The room is too hot already; but until we get rid of hearths and stoves, and have air-pipes, rooms will never be properly warmed.'"

If a spur be wanted to increased exertions, I would thus supply it. Surely, if the physician is more than armies to the public weal, how much greater than he must be that man who, by his inventions, limits or prevents the necessity of calling in the physician.

## FROM MOSCOW.

Moscow! holy Moscow! the ancient capital of Muscovy, the idol of every Russian's heart, whose shrines are to him the holiest in the empire, hallowed by centuries of grand historical events. What associations do not arise at the name? Moscow; the beautiful Moscow! the unfortunate. What vicissitudes of good and evil fortune has this city not passed through? Four times nearly consumed by fire;—in 1536, by accident; in 1572, by the Tartars, when over 100,000 persons perished in the flames, or by the sword; in 1611, by the Poles, who destroyed by fire a great portion of the city; and lastly, in 1812, when the Muscovites gave up their ancient, holy, and beautiful city to the devouring element, the grandest sacrifice ever made to national feeling. The plague of 1771 diminished the population by several thousands, from which it has never recovered, and the history of its battles and sieges would alone fill many volumes. Take, for instance, one of the entrance-gates to the Kremlin, say the Nitrolstry Gate, under whose arches the troops of Tokhtamysh, of Sigismund III., and of Napoleon, have all marched within four centuries. In 1408, it witnessed the siege of Moscow, by Edigei; in 1551, the invasion by the Crim Tartars; and in 1611–12, the battles between the Poles and the Russians for the possession of holy Moscow; and in 1812, Napoleon passed through it when it was partly destroyed by his orders, but subsequently restored by order of the Emperor Alexander I., of Russia.

But in this letter it is not my intention to revert to much of its ancient history, only so far as it is connected with its modern aspect. And now let me place myself on the top of the tower of Ivan Veliki, and take a bird's-eye view of the town, and dot down what appearance it presents. In my various wanderings I have travelled through Asia Minor and the north of Africa, and I have floated on the Golden Horn, with Constantinople within my view; but I have never yet seen any town or city which presented a *coup d'œil*, so truly Oriental or Asiatic as Muscovy's honoured capital, the view from the summit of this tower being certainly one of the most striking and unique in Europe. I have immediately under and about me the most ancient and most historical part of Moscow, and four of probably the most interesting buildings in the world, all within a stone's throw of each other. 1st, the Kremlin, for centuries the palace of the ancient Tsars of Muscovy, which has been the happy home of many, but also the scene of the most deplorable and wicked acts of which history is cognisant. 2nd, the Blagoveschenski Sobor, or Cathedral of the Annunciation, where the Tsars were baptised and married. 3rd, the Uskenski Sobor, or Cathedral of the Assumption, where the Tsars were and still are crowned. 4th, the Arkhangelski Sobor, or Cathedral of the Archangel Michael, where the ancient Tsars were buried, the present dynasty finding their last resting-place, as I have in a former letter informed you, in the Cathedral of St. Peter and St. Paul, at St. Petersburg. Thus truly you may pass from the "cradle to the grave," for here lie buried emperors of such good repute that they have been immortalised by their subjects as saints, with others whose characters are too truly depicted by the cognomen they bore, and such a one was John the Terrible. All these buildings are in the Oriental style of architecture, with scores of

domes and gilded minarets sparkling in the mid-day sun. The late Emperor Nicholas added a large and handsome façade to the old palace, much extending its interior accommodation for modern requirements. The Kremlin Palace, with its cathedrals, monasteries, and other buildings, is enclosed within battlements of solid masonry, and pierced with five gates, the principal of which is the Spiski, or Redeemer Gate, which is the "Porta Sacra" and "Porta Triumphalis" of Moscow. Over it is a picture of the Redeemer, held in high veneration by the orthodox. An omission to uncover the head while passing under this gate was anciently punishable, and the traveller should not fail to pay the respect to old traditions here exacted: even the Emperor himself conforms to the custom. Criminals executed in front of this gate offered their last prayers on earth to this image of the Redeemer. Beyond we see a city whose circumference is about twenty English miles, built totally irrespective of form, but presenting to the eye a pleasing negligence and picturesque irregularity: houses large and small, public buildings, churches, and other edifices, are mingled confusedly together, and the streets undulate continually, and thus offer from time to time points of view, whence the eye is able to range over the vast area of housetops, trees, and gilded and coloured domes. The profusion of churches (370 in number) is a characteristic feature of the city. The other objects which most attract the observer are the Foundling Hospital, the Treasury, the Arsenal, the Bazaar, the University, the Museum, the great Riding School, the Strastny, the Donskoé, the Simonoff, and Novopaski Monasteries, and the Novo-Devichi Convent, the Petrofski Park and Palace, and the Hermitage and Zoological Gardens.

And now I descend from the Ivan Veliki tower, and enter the ancient part of the Kremlin Palace by the red steps, which are now only used on important occasions, such as when the Emperor goes to the Cathedral of the Assumption. These steps lead to a gold court, an audience-chamber, and banqueting-room, and also to the Hall of St. Vladimir, to which the Tsars proceed immediately after their coronation, and take their seat upon the throne for the first time, adorned with all the Imperial insignia, and afterwards dine amidst their nobles, crowned heads being alone seated at the same table. We now come to a very interesting part of the palace, the terem, anciently devoted to the Tsarevna and her children. The rooms contain many objects of great curiosity, among which are the bed of Alexis, father of Peter the Great, just as he left it when carried to his grave; seals of many of the sovereigns, especially a gold seal of John the Terrible, which has sealed the doom of thousands, and which is almost painful to behold from its unhappy associations. Then more rooms, such as the Hall of the Patriarchs, &c., too numerous to particularise, on to the modern part of the palace, built by Nicholas. There we have on the ground floor all the private apartments of the Emperor and Empress, and the upper floor, containing the State apartments, which are as grand and as gorgeous as an autocratic emperor like Nicholas, with untold means at his command, could make them. There are several large halls, among which the Hall of St. Andrew and the Hall of St. George, 200 ft. long, 68 ft. broad, and 58 ft. high, where the names of each individual decorated with this order since its foundation is to be found inscribed upon the walls in letters of gold; the furniture is black and orange, the colours of the order. There is also a picture-gallery, containing, among others, some fine pictures brought here from the Royal Castle at Warsaw. R. RICHARDSON-GARDINER.

## DESTRUCTION OF ST. MARY'S CHURCH, CRUMPSALL, BY LIGHTNING.

AT a recent meeting of the Manchester Library and Philosophical Society, a paper was read by Mr. Joseph Baxendell, F.R.A.S., on the destruction of St. Mary's Church, Crumpsall, on the 4th of January, by fire, from a lightning discharge.

The interest taken in the question, he said, induces me to submit to the Society the following results of a careful examination of the lightning conductor, spouts, gas-piping, &c., at the church and rectory, which I made on the 27th ultimo. The lower part of the conductor passes through an iron down-spout, and terminates in a common drain-pipe at a distance of only 3 ft. 9 in. from the lower end of the spout, and at a depth of only about 18 in. below the surface of the ground. It has, therefore, no direct connexion with the earth, and is in consequence absolutely useless for the purpose for which it was intended. The iron down-spout through which the conductor passes received the end of a lead gutter, which extended the whole length of the church to the top of a similar iron down-spout built in the wall inside the rectory, and connected with another iron spout outside the wall by a leaden bend pipe. This leaden bend was above the floor of the vestry, and at a distance of 18 in. from it, and below the floor there was a lead gas-pipe connected with the large gas meter, which received its supply from a main laid in the street leading to the rectory. There was a small meter under the tower, but no part of the piping connected with it approached the conductor, the spouts, or the lead gutter, within a less distance than 3 ft. Assuming, then, that the lightning struck the top of the conductor, its course would be through the lead gutter to the iron down-spout in the vestry, and then by a disruptive discharge from the lead bend to the lead gas-pipe under the floor of the vestry, and through the meter to the street main. The lead gas-pipe would be melted and the gas ignited. . . . I have assumed that the lightning struck the top of the conductor, but I must state that I was unable to discover the slightest trace of any action tending to support this view; and it is at least equally probable that the stroke fell directly on the top of the iron down-spout at the east end of the church. . . . In either case, however, whether the discharge took place upon the top of the conductor or on the top of the down-spout in the vestry, the ultimate results would be precisely the same. Had the conductor been directly connected with the gas main, as suggested by Mr. Wilde, the accident to the church would have been prevented, but not that at the rectory. The practical conclusion, therefore, to be drawn from a consideration of all the circumstances of this disastrous occurrence is, that in towns and districts where systems of gas and water-mains and pipes exist, all lightning conductors should be directly connected with the mains of both systems.

## THE GOVERNMENT AUDITORS AND THE CORPORATIONS.

TROUBLES to public bodies, any more than to individuals, do not come alone. "What luck, Tim?" asked an Irishman, one morning, of an old acquaintance, who was in the habit of avoiding a meeting in consequence of his indebtedness for a small loan. "By the table of war," replied Pat, "I've seen a ghost." "Thin, maybe," replied the other, with a touch of dry humour, "'Tis the ghost of three and ninepence I lent you." This authentic anecdote has its application just now in the matter of some corporation ratepayers and auditors. If a bomb-shell were to be suddenly sent into the midst of a quiet family party, it could not cause more panic or consternation than the announcement to certain corporations and public Boards that a Government auditor was despatched with due authority to look over and balance their accounts. In the sister island there is a little reign of terror inaugurated; but, unlike former Irish outbreaks, it is a wholesome public panic. On the 19th of December, a letter was addressed to the lord mayor of Dublin, by the Under Secretary for Ireland, in reference to the appointment of auditor for the borough of Dublin, with copy of the warrant appointing Mr. Finlay, signed by the Marquis of Hartington, and lodged by Mr. Finlay with the town clerk. These were accompanied with the opinions of the law advisers and law officers of the Crown. Also a notice, dated the 6th of January, 1872, was given by Mr. Finlay to the town clerk, in pursuance of the 34th and 35th Vict., cap. 109, relating to the corporation accounts.

Strange to say, these communications got into the hands of certain members of committees, and were not brought before or under the notice of the council until several days had elapsed, and a deputation was organised in the meantime to wait upon the Under-Secretary, at the instance of a committee, who held the document lodged by Mr. Finlay, and not with the knowledge of the council. The deputation were asked by the Under-Secretary to put their views upon paper. This, it seems, they have done, and up to the time of our writing, nothing but a formal acknowledgment has been received.

The object of the deputation to the Under Secretary was to throw obstacles in the way of the audit.

Of course there were several reasons alleged why the audit could not take place. It was urged that the corporation experienced nearly insurmountable difficulties in bringing the Local Government Act into operation. We do not doubt this for a moment, but not for the reasons advanced by the committee of the corporation. Now, be it known that all the ratepayers of Dublin are unanimous in having a Government audit, for they have reason to fear that matters are far from being right. They would willingly pay for the expense of the audit, for the satisfaction of beholding what their eyes have never yet feasted upon these many years.

The second trouble of the corporation lies in the announcement made by Mr. Justice Fitzgerald in his address to the city grand jury. He confessed that in looking over the calendar, he missed one case he had expected to find, —"He did not find any indictment, although there should have been one, against some one for a public nuisance. As the lord mayor was a member of the commission, it might not be considered a proper tribunal before which to institute such a proceeding; but they could not shut their eyes to the fact that in many quarters the state of the streets was such that an indictment for a public nuisance might lie against those in whom the law had cast the responsibility of keeping the streets in proper order."

This, we would think, ought to have been sufficient to stir any public body into action, and rouse up its latent spirit, if it had any.

There are two other corporations in Ireland who are likely to be fixed and transfixed by the action of the Government auditors. Here, in London, in the east and in the south of the metropolis, we hear of some vestries likely to come to sadder grief, on the head of illegally-signed cheques, passed out by members of certain committees, without the knowledge of the council. There is one vestry in South London who have erred to the trifle of a few thousands, not hundreds, extending over a not very long period.

## THE PUBLIC HEALTH.

IN the House of Commons, Mr. Stansfeld has brought in a Bill relating to public health. This measure was, he said, a logical consequence of the Local Government Bill of last year, which consolidated in one department the old Poor Law Board and the Medical Department of the Privy Council, amalgamating under one supervision the laws relating to poverty and the laws relating to health. It was a sanitary Bill, and nothing more; and it was founded upon the report of the Sanitary Commission, with some of the recommendations of the Rivers Pollution Commission. The two great objects of this Bill were the construction of local sanitary authorities, and the institution of new sanitary powers. He looked upon the first as of the greatest importance. He thought the House would come to the conclusion that among the foremost objects of sanitary reform was the establishment of an efficient machinery for enforcing sanitary regulations. To this end, they required Government supervision, definite authority with definite responsibility. By definite authority, he meant that there should be one, and only one authority; and by definite responsibility, he meant that legislation should cease to be permissive, and that distinct responsibility should be placed on these local bodies. He proposed to divide the authority into urban and suburban; that the urban authority should be the Town Council, the Improvement Commissioners, or the Local Board; and that the rural authority should be the Boards of Guardians, with the exception of those guardians who represented the urban portion of the unions. He would confer upon the rural authority all the powers both of the Sewage Utilisation, and of the Nuisance Removal Acts. To the urban authority would be allocated the same powers, in addition to the powers conferred by former Acts. Then it was proposed to combine these powers for certain purposes: the local authorities would have power not only over nuisances outside a house, but inside; they would also have power to test the purity of water supplied by water companies, and to deal with the adulteration of food. They proposed that the sanitary bodies should have the power of providing hospitals for

the treatment of epidemics, and he should ask the House to give the local government boards with respect to the country the same power which the Poor Law Board possessed with respect to the metropolis, of requiring the institution of public dispensaries and the supply of drugs. They proposed to call on the local authorities to appoint the necessary sanitary officers, including medical officers. With the aid of these officers they hoped to be able to furnish statistics of disease in the same way as statistics of death were now supplied.

Sir C. Adderley said that he intended to introduce a Bill himself, but his measure was for the purpose of the consolidation and codification of the existing laws, which were in a state of great confusion. The sanitary laws of the country were less defective than confused, and they would not have a good sanitary system till they were simplified.

Mr. A. Johnston expressed a hope that the status of the executive officers should be improved, and that they should not be so much under the thumb of those who elected them.

Mr. F. S. Powell pointed out several improvements that ought to be made, such as closing of impure wells, the establishment of public mortuaries, and the providing of disinfecting apparatus.

Leave was given to bring in the Bill.

## CASES UNDER METROPOLITAN BUILDING ACT.

### THE DISTRICT SURVEYOR OF HAMMERSMITH *v.* HAWKINS.

THE defendant in this case, tried before Mr. Ingham, at Hammersmith Police Court, is a nurseryman, carrying on business at Shepherd's Bush, the ground he occupies being nearly covered by glass-houses of various heights, all standing upon brick walls, and each heated by hot water. Two chimneys have been built recently, and attached to some of the houses in question; but no notice had been given, and the district surveyor, Mr. Knightley, summoned Mr. Hawkins for not giving notice for one of these.

His answer was that the chimney was not a building, and that if it was, he was exempt on the score of distance, as glass-houses were not buildings, and, if they were, the Act exempted them. The District Surveyor quoted sec. 38, sec. 6, rule 15, sec. 21, sec. 20, rules 4, 6, 9, and 10, and secs. 31 and 56. The magistrate took time to consider, and eventually gave a decision in favour of the District Surveyor, observing that the intention of the Act of Parliament was clear, that all such constructions were to be considered as buildings; if not so, they would be entirely exempted, instead of which the Act definitely exempted only a proportion of such buildings. Notice of appeal was given; but upon the recommendation of the magistrate, the chimneys were measured, to ascertain if they were exempted on the score of distance, and the appeal was eventually abandoned.

## THE MONTREAL CATHEDRAL CASE.

SIR,—With reference to your article on the cathedral at Montreal in the last number of your paper,—Wardle *v.* Bethune,—and your comments thereon, I am in a position to give you the actual facts of the case; and I must begin by saying that I not only have no kind of interest in the matter even indirectly, but the plaintiff and all the counsel are strangers to me even by sight.

The old cathedral was burned down, perhaps, sixteen years ago, and plans for a new one got out. The architect for the new one died, and another was appointed,—an Englishman,—who was instructed to carry out the plans of his predecessor. The foundations of the buildings were a separate contract, and as they were completed about the time of the new appointment, tenders were advertised for by the architect from the plinth upwards.

The present cathedral consists of a central spire (of considerable height), rising from the intersection of the transepts with the body of the church; and as the foundations were not calculated for the great extra weight on the nave arches, there was a settlement, and, of course, various parts of the building abutting upon them went down to the extent of some inches, making it unsightly. The contractor was refused the amount sued for in consequence of this, and pleaded that at least his own work was properly done, and the architect had certified it, who was strict in his requirements. So far is not of itself disputed; but the position the cathedral authorities take is this:—"We agreed to pay you for a building to be first-class work. Surely it is not necessary to say there must be no settlements or sinkings. The nature of any kind of contract supposes this. If we ask a man to use the bottom of a trunk that seems to us sound, and put sides and a top to it; supposing further that when it comes home we find it useless, because the bottom is rotten,—do you think we are going to pay him in full? He ought to have told us; and so you, if you are going to spend 40,000*l.* of money we can never raise again, should look to the foundations you are using; you should have satisfied yourself and us. You are a man of skill; none of us are. Our contract was with you to build,—not an architect. The architect who designed them is no more. You are the man. If the fault had been open and apparent, nobody would have been required to be responsible. Let the cause be what it may we can only pay for complete work." I have no knowledge of law, but perhaps some of your readers can say if this is "common law" or statutory, and as such local in its application.

One thing is clear, that an analogy often relied upon by architects, that they are after all much in the position of other professional men, like lawyers and doctors, does not hold, because a man must die sometimes, and yet a doctor have earned his fee well; and in every case one lawyer must lose. Yet there is no "must" about the stability of a building. M. A.

## THE LAMP STANDARDS ON THE THAMES EMBANKMENT.

THE mention made in our last of the lamps recently put up on the Victoria Embankment has brought us some inquiries concerning the dolphin standard which bears them. We have already given some particulars, but willingly repeat that this standard was designed by Mr. George Vulliamy, the superintending architect of the Board, and was put up in the shape of a plaster model some time ago in competition with two others. The plaster model was executed by Mr. Mabey, of Storey's Gate, Westminster, from careful drawings by the designer. From this model another was made in brass, highly finished, from which the standards to the top of the caps, from which the foliated arms extend which carry the copper globular lanterns, were cast and fixed by Messrs. Holbrook, iron-founders, Manor-street, Chelsea (selected in competition with other founders), at 21*l.* each. They are good specimens of iron casting, in very bold relief, the drawbacks, &c., necessary being 500 or 600 in number. The arms and lanterns above the capitals were made and fixed (in competition also) by Mr. Parkes, gas-engineer, London-street, Paddington, at 13*l.* each, fixed complete, and this, with about 1*l.* each extra for some little necessary adjuncts, gives the total cost of each, fixed and ready for lighting, which they will be on the night of the Thanksgiving, as 35*l.*

Mr. Vulliamy may be complimented on the production of a very successful work. The same standard will be used on the Albert Embankment.

## THE ARK IN THE EAST.

SIR,—Will you allow one who does not make architecture a "profession" to inquire, through the medium of your valuable journal, why the architect of the synagogue for Liverpool has placed the ark at the east end of the building? (See the *Builder*, 6th of January.)

What a great and pleasurable study to some men is the art of construction, the origin of form, and the use of the various parts of a building; they look upon the great buildings of antiquity as a hieroglyphic history of much of the social, heroic, and religious habits of the people of past generations; and it is because the Liverpool architect appears to violate the Jewish custom that I have asked the question as to the ark in the east. One cannot give the "thousand and one" reasons in a letter why the ark should not be at the east end of the synagogue; but one or two may for the present suffice; and, first, the law given to Moses (Exodus xxv. 9) appears to be in contradistinction to idolatrous worship, and that the Israelites should turn their back upon all false customs of worship. "The seat of the congregation" set up in the wilderness had the only entrance on the east side, and the "tabernacle was reared" on the west "side;" and in the tabernacle to the west stood the ark, and over it the "mercy-seat" above the ark. King David appears to have been the architect of the first temple; for "he gave to Solomon the pattern" of every part (see 1 Chron. xxviii. 11, 12); nor was there any alteration as to position, the only entrance to the temple proper being at the east, and the ark at the west end. The ark was removed from the tabernacle to the temple. The Jewish synagogues appear to have numbered about 480 at one time in Jerusalem; but it is not likely that they would have been built contrary to a law which was given, for obvious reasons. The Prophet Ezekiel (viii. 16) speaks of turning and bowing towards the east as the very climax of "abominations;" and Josephus relates the fact of two young men, learned in the Jewish law, breaking down the eagle and other work that Herod the King had set up to beautify the temple. The eagle had direct relation to the same idolatrous customs, and was carried with the armies to battle, perhaps on the same principle that the Crusaders carried the cross.

The first cathedral built in this country appears to have been after the plan of the temple; for we are told, "the Archbishop of Canterbury had erected a cathedral of stone on the model of a Roman basilica. There, in imitation of St. Peter's, the altar was erected, not at the east, but at the west end of the 'church;' it was the ancient form of the Eastern Church, not yet discarded in the West" (653 A.D.). Perhaps the change did not take place until long after that date. J. C. CURTIS.

## SCHOOL BOARDS.

MR. FORSTER, in reply to a question in the House of Commons, said building grants have been promised, since the 1st of August, 1870, to 999 schools, the amount of the grants being 168,131*l.* Of these 948 are denominational schools, whose grants amount to 160,850*l.* There are still 1,901 applications under consideration: of these 1,287 have been approved by the office, subject to fulfilment of conditions, and 614 are waiting information from managers; 243 applications have been refused, and 194 have been withdrawn. Of these 999 cases it is quite possible that some of the promised grants may not actually be paid. The average grant to each will be about 168*l.* I think I shall make an outside guess if I say that the grants to meet all applications that have been made since the passing of the Act will amount to about 400,000*l.* This sum will represent 2,400 schools, providing, in rough average, for about 400,000 children. Taking the average of the last four years, the Parliamentary grant has been slightly less than one-fifth of the total cost of a school; so that this 400,000*l.* out of taxes will be met by 1,600,000*l.* private subscriptions, and will make provision for 400,000 children, which, without the grants and private subscriptions, would have cost the rates 2,000,000*l.*

The School Board of *London* have invited the following architects to send in designs for a public elementary school, to be erected in Johnson-street, Stepney, to accommodate 1,000 children, viz.:—Messrs. E. Barry, Saxon Snell, Roger Smith, A. & C. Harston, Jarvis & Son, and A. Newman. The building is to be designed upon the principle of class division, sometimes called the Prussian system.

The *Halifax* School Board have come to the decision to erect four new schools, at an expense of 15,000*l.*

At the last meeting of the *Wolverhampton* School Board, a communication from the Central Department agreed with the Board that accommodation in new schools should be provided for 1,500 children; and they pointed out that their inspector in Wolverhampton had recommended that there should be—(1) a school in Green-lane, Dudley-road, for 250 children; (2) between North-road and Stafford-road, for 350; (3) between Monmore-green and Horseley-fields, for 300; and (4) at Springfields, for 100. The tender of Mr. Clarke for the needed alteration at the late British school, in Walsall-street, was accepted, at 928*l.*

The *Liverpool* School Board have agreed to erect their first school on the class-room system.

*Leeds School Board.*—Messrs. Alexander & Henman, of Stockton and Middlesbro' have been appointed architects to the School Board School to be erected by this Board in Burley-road, Leeds.

*Middlesbro' School Board.*—At their last meet- this Board decided to build their first school from the designs of Mr. Blessley, architect, of Middlesbro', and their second from those of Messrs. Alexander & Henman, architects.

## OLD ST. PAUL'S CATHEDRAL.

AT the present time, when the subject of the completion of St. Paul's Cathedral is so much discussed, it may not prove uninteresting for us to retrace our thoughts into the past for a few moments, and to muse on the glorious old Gothic pile which preceded Wren's magnificent achievement. I will not call the modern cathedral of London the master's *chef d'œuvre*, for such an assertion may be open to question: though the largest work he ever accomplished, still some of his other City churches have been by many considered more successful. I feel some little hesitation in reverting to so well-worn and trite a subject as that of our lost old St. Paul's; but having investigated its history rather attentively a year or so back in the course of some studies, I now venture to speak of it.

A little time since the Institute of Architects proposed in their list of subjects for medals and prizes a set of drawings illustrative of the restoration of old St. Paul's Cathedral founded upon Hollar's plates, engraved in Dugdale's Monasticon.* No competitors, however, came forward, for these very sufficient reasons,—that the drawings, if made out to the specified scale of 8 feet to the inch, would have been of so gigantic a size as virtually to preclude their accomplishment. The same subject was in the next session again inserted in the programme,—considerably modified, however, *i.e.*, drawings for the restoration of the choir alone being required. Having advanced during the previous year with the designs for the restoration of the whole cathedral, I had been led to study the entire question in all its bearings. In the following notes several of the characteristics that distinguished our beautiful cathedral are touched upon, every care being taken to avoid needless repetition of points that may have been previously discussed.† One of the earliest discoveries made was that of the numerous inaccuracies and discrepancies in Hollar's plates. To take one instance only among many. The arrangement of the various steps indicated in the ground-plan is contradictory. It may be remarked, in passing, that in 1646 (see Timbs's "Curiosities of London") a considerable accumulation of rubbish had taken place, so that the entrances of the cathedral were buried, and thus a great loss to the dignity appropriate to such portals was involved. It is questionable whether the plates show the pitch of the lead-covered roofs correctly; for the latter are so exaggerated in height as to seemingly crush the substructure. Very possibly the ancient inclination had not been preserved, for in 1561 a fire took place, destroying the steeple and the upper roof of the church and aisles. It is singular that no external doors to the cloisters appear. Generally speaking, in old examples there are two or three, or sometimes more, external doors, without counting those leading into the cathedral to which they are attached. The Chapter-house was but small, only 32 ft. 6 in. in internal diameter. In comparison with the spacious Chapter-house, at Westminster, it must have appeared diminutive. Had this building been of large dimensions, it would have been difficult to contrive space for it in the middle of a cloister garth. The cloisters must either have been much extended, or otherwise the Chapter-house would have looked cramped and "boxed in." According to the scale marked on Hollar's ground-plan of the cathedral, the internal width of the tower was about 40 ft., a great span for walls but 7 ft. thick. Most of our cathedrals, even with smaller towers, appear to have walls 8 ft., 9 ft., or 10 ft. thick. Very probably those most striking features in Old St. Paul's, the pinnacles and flying buttresses springing from the lower part of the tower, were not portions of the original design, but were added during the progress of the building to strengthen the failing walls. The tower rose to a great height before the base of the spire was reached, and as most likely it was treated as a lantern, the internal effect must have been exquisite. The Consistory Court, as it appears in Hollar's plan, may, perhaps, be in its primary position, but I cannot find any Mediæval examples in a similar situation, *i.e.*, placed in such way as to block up a portion of one of the nave aisles.‡ In Billing's "History of Durham Cathedral," page 34, it is mentioned that the Consistory Court occupied a space under the crossing over the tomb of Bishop Langley (A.D. 1406–1437). This is almost the only case in which the position of this court is mentioned at all, as far as I know. It was unusual in cathedral plans to see large central doors to the transepts (Lichfield, however, being an example to the contrary), but no doubt, in an immense city such as London, it was desirable to have means of exit in these positions in addition to the western entrances. The Rev. Mackenzie E. C. Walcott, in his "Church and Conventual Arrangement," says that porches were frequently built on the town side of the cathedral, as at Salisbury, Wells, Hereford, &c. Referring to Hollar's illustrations, the piers in the western part of the choir have indications of being portions of the original Norman church, which might have been afterwards "cased" in the Early English period. The easternmost bay was probably wider than the others,—a somewhat unusual occurrence, the more general plan being to make the end bays narrower than the remaining ones. In none of the plates are there any appearances of a wall-passage, a truly remarkable fact in so magnificent a church. Far more probably, however, owing to the loose manner in which Hollar's views were engraved, it was not thought worth while to show them. The list of the general dimensions given in page 17 of Dugdale's Monograph does not seem accurate. For instance, the total length of the cathedral there specified (690 ft.) cannot refer to the *building*, but probably supplies the length of the *churchyard*. The scale on the ground-plan makes out the length of the cathedral from east to west, inclusive of walls, about 603 ft.

The situation of the chapels or chantries between the external buttresses of the choir is rather unusual, but nearly similar examples exist in connexion with the choir of Exeter Cathedral, and at St. Alban's Abbey. The treasury, with some show of probability, might have occupied such a position as this. Probably many of your readers have examined the quaint old painting in the possession of the Society of Antiquaries, representing an external view of old St. Paul's. This picture was executed in the reign of James I., and at a date consequently anterior to the publication of Hollar's plates in 1646. Turret-like pinnacles crown the apex of the gables to the east front and south transept; they would appear to form part of the original design, and did not exist when Dugdale's book was brought out. Such features are not very common, but we have instances in the south transept at York Cathedral, and the north transept, Westminster Abbey. The wide bay in the choir probably marks the junction between the earlier portion, commenced in 1222, and the easternmost bays soon afterwards added. It may have been treated (in the manner of design) as "intermediate;" that is, partly following the details of the older work, and likewise being executed in character with the new. In fact, the treatment may have been similar to that adopted at Westminster Abbey. "I think the older part may have included one bay of the great arcade and aisle, or, to say the least, some of its details were continued in that bay." *

We do not find anywhere in Dugdale's work the position of the ancient sacristy described; it does not appear that it formed an external structural feature in the building. Is it possible that the undercroft of the Chapter-house was used for the purpose? It is much to be regretted that no really accurate geometrical drawings of this fine cathedral exist. Yet with respect to the western front, Inigo Jones has, I believe, published elevations in his works. I might go on to expatiate upon the many striking features of old St. Paul's; its nave and choir, each with twelve bays; its noble transepts, which were unusually long; and its lofty tower, surmounted by the leaden spire. The writer of every popular article, however, upon Mediæval London, has invariably, of course, alluded to this subject, and dilated upon its beauties and characteristics. May London ere long be able to boast of a *completed* Renaissance St. Paul's, a worthy successor to that edifice now gone for ever from among us.

EDMUND B. FERREY.

* All the remarks here referring to Hollar's plates point to Dugdale's Monograph on old St. Paul's.

† I contributed a short article on old St. Paul's to the *Builder* (vol. xxvi., p. 465), to which I would refer those interested in this matter for further particulars.

‡ The Consistory Court in the modern St. Paul's, till very lately, occupied a similar position to that in the Mediæval Cathedral. "What was formerly the Consistory Court, in St. Paul's Cathedral, has been arranged as a morning chapel. The Holy Communion was celebrated in it for the first time on Thursday morning, on the occasion of the Bishop of London's ordination."—The *Rock*, quoted in the *Times*, December 27, 1871.

* Gleanings from Westminster Abbey (G. G. Scott, R.A.).

## PRESBYTERIAN CHAPEL AND SCHOOL, BRECON.

THE style adopted is Early Decorated. The walls are built with native stone rubble, and Bath stone is used for the dressings. The spire is 85 ft. in extreme height above the road level. The tower contains, in a semi-octagonal projection at the side, the staircase to a gallery across the front end of the chapel. The two front entrances are connected internally by a corridor, separated from the body of the chapel by a glazed screen, with doors in it, opening into the chapel. The chapel is 33 ft. wide and 58 ft. long in the clear, with an apse at the back. The pulpit is on a platform in front of the apse-arch. The accommodation, including the gallery, is for about 400 persons. The ceiling is arched in outline, the apex being 10 ft. below the ridge of the roof. Deal ribs divide the ceiling into panels, and these, as well as certain parts of the walls, are ornamented by chocolate-coloured distemper work. In the rear of the chapel is a school-room, 22 ft. by 39 ft., as well as a class-room and vestry, for the use of the minister. The woodwork throughout is stained and varnished.

The cost of the chapel and school, including heating, lighting, and fencing, was 2,186*l.*

The architect was Mr. W. F. Poulton.

## THE CLERKENWELL AND SMITHFIELD BRANCH OF THE LONDON JOINT-STOCK BANK.

THE building forming the subject of the accompanying illustration stands on an irregularly-shaped plot of ground at the corner of Saint John-street and Charterhouse-lane, having a frontage of 68 ft. to Saint John-street and 53 ft. to Charterhouse-lane.

The principal entrance to the bank is at the splayed angle between the two streets, and has a grey granite architrave round the doorway, flanked by two polished Aberdeen granite columns, surmounted on the first and second floors by oriel windows, and terminating above the main cornice with a segmental pediment.

Above this rises an effectively grouped composition, comprising a chimney-stack ornamented with swags of flowers falling over a recessed panel, in which is carved the date of the erection.

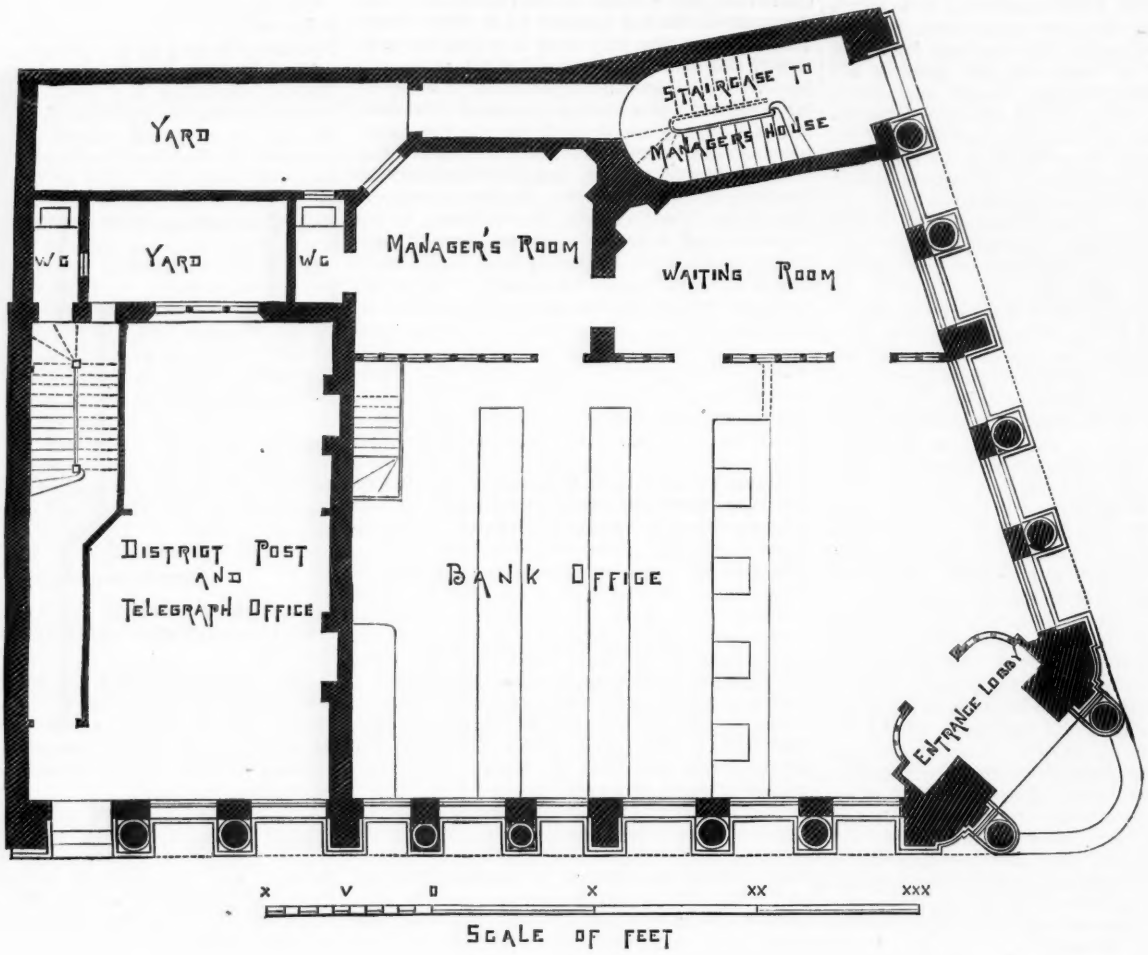
The elevations are Italian in style, the ground-floor order being Doric, surmounted by three ranges of grouped windows. The building is rusticated at the angles, and over the third-floor windows runs an enriched frieze; above which a bracketed cornice finishes the whole composition. The façades are executed throughout in Portland stone.

Internally the basement contains the necessary lavatories, closets, and other accommodation for the clerks, a messenger's room, three strong-rooms, and a fireproof safe for books and papers. The ground-floor is divided into two portions, the larger containing the bank office (41 ft. by 27 ft.), with manager's room, waiting-room, and private entrance to the residence above; the smaller portion, with entrance in St. John-street, is sublet as a District Post and Telegraph Office. On the first floor are the manager's dining and drawing rooms, with the usual domestic offices, and the second and third floors are occupied as bed-rooms.

Messrs. Browne & Robinson were the contractors, the total cost being about 12,000*l.* The subsidiary trades were distributed as follow:—The iron girders and rolled-iron joists were supplied by Messrs. M. T. Shaw & Co.; the fire-proof flooring was executed by Messrs. Dennett & Co.; the carving was entrusted to Messrs. Bell & Almond; and Messrs. Manuelle supplied the polished granite. The sanitary appliances were manufactured by Mr. George Jennings; the strong-room doors and iron safes by Messrs. Leadbeater & Co.; and the gas-fittings by Mr. Hugh Mather.

The whole of the works have been executed from the designs and under the superintendence of Mr. Lewis H. Isaacs, architect, of Verulam-buildings, Gray's-inn. Mr. Tracey was the architect's clerk of the works, and Mr. Cornish represented the contractors.

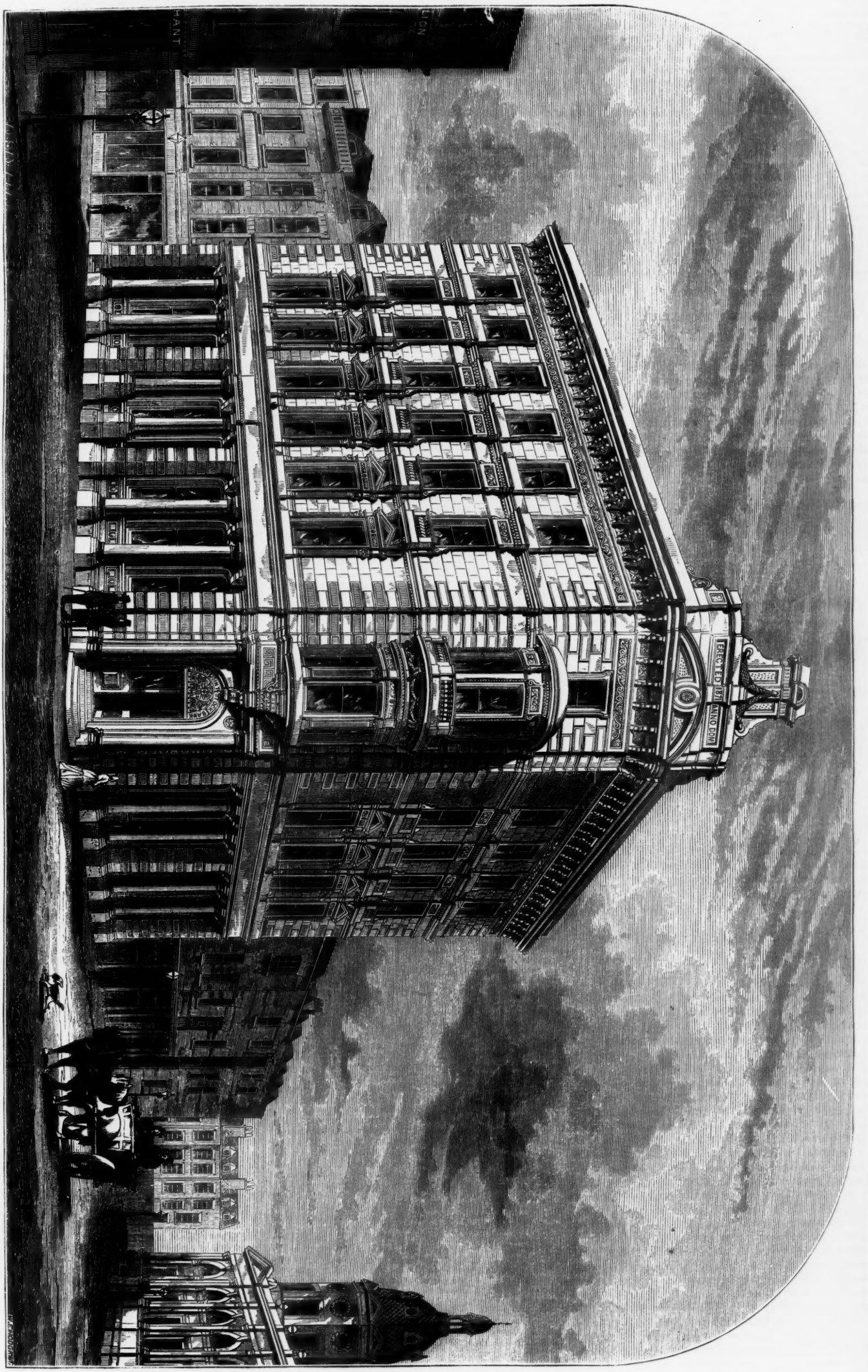
**Rochester Cathedral.**—It is proposed to supplement the work of restoration at the Cathedral, undertaken by the Dean and Chapter from funds at their disposal, by filling the new windows at the east end of the choir with stained glass, the funds to be raised by subscription.




THE CLERKENWELL AND SMITHFIELD BRANCH OF THE LONDON JOINT STOCK BANK.

*Plan of Ground Floor.*

PRESBYTERIAN CHAPEL AND SCHOOL, BRECON.——MR. W. F. POULTON, ARCHITECT.



THE CLERKENWELL AND SMITHFIELD BRANCH OF THE LONDON JOINT STOCK BANK.—MR. LEWIS H. ISAACS, ARCHITECT.

## FORM FOR "CONDITIONS" OF BUILDERS' CONTRACT.

AFTER long consideration and numerous revisions the following Conditions of Contract, on the basis of Headings sanctioned by the Royal Institute of British Architects, have been prepared by the London Builders' Society:—

1. The contractors are to provide everything of every sort and kind which may be necessary and requisite for the due and proper execution of the several works included in the contract according to the true intent and meaning of the drawings and specification taken together, which are to be signed by the architect and the contractors, whether the same may or may not be particularly described in the specification or shown on the drawings, provided that the same are reasonably and obviously to be inferred therefrom; and in case of any discrepancy between the drawings and the specification the architect is to decide which shall be followed.

2. The contractors are to conform in all respects to the provisions and regulations of the Metropolis Local Management Act and the Metropolis Buildings Act, and to the regulations and bye-laws of the Metropolitan Board of Works and of the local authorities, and they are to give all notices required by the said Acts to be given to any local authorities, and to pay all fees payable under any of the said Acts to any such authorities or to any public officer in respect of the works.

3. The contractors are to set out the whole of the works, and during the progress of the works to amend on the requisition of the architect any errors which may arise therein, and upon request are to provide the necessary appliances or furnish the necessary vouchers to prove that the several materials are such as are described. The contractors are to provide all plant, labour, and materials which may be necessary and requisite for the works; all materials and workmanship being the best of their respective kinds; and the contractors are to leave the works in all respects clean and perfect at the completion thereof.

4. Complete copies of the drawings and specification signed by the architect are to be furnished by him or by the measuring surveyor to the contractors for their own use, and the same or copies thereof are to be kept on the buildings in charge of a competent foreman, who is to be constantly kept on the ground by the contractors, and to whom instructions can be given by the architect. The contractors are not to sublet the works or any part thereof without the consent in writing of the architect.

5. The architect is to have at all times access to the works, which are to be entirely under his control. He may require the contractors to dismiss any person in the contractor's employ upon the works, who may be incompetent or misconduct himself, and the contractors are forthwith to comply with such requirement.

6. The contractors are not to vary or deviate from the drawings or specification, or execute any extra work of any kind whatsoever, unless the same be required to comply with any of the provisions of any of the Acts of Parliament, regulations, or bye-laws hereinbefore mentioned, or unless upon the authority of the architect, to be sufficiently shown by any order in writing, or by any plan or drawing expressly given and signed or initialed by him, as an extra or variation, or by any subsequent written approval signed or initialed by him. In cases of day work, all vouchers for the same are to be delivered to the architect or clerk of the works at latest during the week following that in which the work may have been done; and only such day work is to be allowed for, as such, as may have been authorised by the architect to be so done, unless the work cannot from its character be properly measured and valued.

7. Any authority given by the architect for any alteration or addition in or to the works is not to vitiate the contract, but all additions, omissions, or variations, made in carrying out the works for which a price may not have been previously agreed upon, are to be measured and valued, and certified for by the architect, and added to or deducted from the amount of the contract as the case may be, according to the schedule of prices annexed, or, where the same may not apply, at fair measure and value.

8. All work and materials brought and left upon the ground by the contractors or by their order, for the purpose of forming part of the works, are to be considered to be the property of the employer, when payment shall have been made of the amount of any certificate in which the value thereof shall be included, and in such case the same are not to be removed or taken away by the contractors or any other person without the special licence and consent of the architect; but the employer is not to be in any way answerable for any loss or damage which may happen to or in respect of any such work or materials either by the same being lost or stolen, or injured by weather or otherwise.

9. The architect is to have full power to require the removal from the premises of all materials which in his opinion are not in accordance with the specification, and in case of default the employer is to be at liberty to employ other persons to remove the same without being answerable or accountable for any loss or damage that may arise or happen to such materials; and the architect is also to have full power to require other proper materials to be substituted; and in case of default the employer may cause the same to be supplied, and all costs which may attend such removal and substitution are to be borne by the contractors.

10. Should any of the works be, in the opinion of the architect, executed with improper materials or defective workmanship, the contractors are, when required by the architect during the progress of the work, forthwith to re-execute the same, and to substitute proper materials and workmanship; and, in case of default of the contractors in so doing within a reasonable time, the architect is to have full power to employ other persons to re-execute the work, and the cost thereof is to be borne by the contractors.

11. Any defects, shrinkage, and other faults which may appear within months from the completion of the building, and arising out of defective or improper materials or workmanship, are, upon the direction of the architect, to be amended and made good by the contractors at their own cost, unless the architect shall decide that they ought to be paid for the same; and, in case of default, the employer may recover from the contractors the cost of making good the works.

12. The contractors are to insure the building against loss or damage by fire, in an office to be approved, in the joint names of the employer and contractors, for half the value of the works executed, until it shall be covered in, and thenceforth until completion in three-fourths of the amount of such value, and are, upon request, to produce to the architect the policies and the receipts for the premiums for such insurance. All moneys received under any such policies are to be applied in or towards the rebuilding or reparation of the works destroyed or injured. In case of neglect the employer is to be at liberty to insure and deduct the amount of the premiums paid from any moneys payable to the contractors.

13. The building, from the commencement of the works to the completion of the same, is to be under the contractors' charge; they are to be held responsible for, and are to make good all injuries, damages, and repairs occasioned or rendered necessary to the same, by fire or by causes over which the contractors shall have control, and they are to hold the employer harmless from any claims for injuries to persons or for structural damage to property happening from any neglect, default, want of proper care, or misconduct on the part of the contractors or of any one in their employ during the execution of the works.

14. The employer is at all times to have free access to the works, and is to have full power to send workmen upon the premises to execute fittings and other works not included in the contract, for whose operations the contractors are to afford every reasonable facility during ordinary working hours, provided that such operations shall be carried on in such a manner as not to impede the progress of the works included in the contract; but the contractors are not to be responsible for any damage which may happen to or be occasioned by any such fittings or other works.

15. The contractors are to complete the whole of the works (except painting and papering, or such other works as the architect may desire to delay), within calendar months after the commencement of the same, unless the works be delayed by reason of any inclement weather, or causes not under the contractors' control, or in case of combination of workmen, or strikes, or lock-out affecting any of the building trades, for which due allowance shall be made by the architect, and then the contractors are to complete the works within such time as the architect shall consider to be reasonable, and shall from time to time in writing appoint; and in case of default, the contractors are to pay or allow to the employer as and by way of liquidated and agreed damages, the sum of £ per week for every week during which they shall be so in default, until the whole of the works (except as aforesaid) shall be so completed, provided the architect shall in writing certify that the works could have been reasonably completed within the time appointed.

16. If the contractors shall become bankrupt, or compound with or make any assignment for the benefit of their creditors, or shall suspend or delay the performance of their part of the contract (except on account of causes mentioned in clause 15, or on account of being restrained or hindered under any proceedings taken by parties interested in any neighbouring property, or in consequence of not having proper instructions, for which the contractors shall have duly applied), the employer, by the architect, may give to the contractors or their assignee or trustee, as the case may be, notice requiring the works to be proceeded with, and in case of default on the part of the contractors or their assignee or trustee for a period of days, it shall be lawful for the employer, by the architect, to enter upon and take possession of the works, and to employ any other person or persons to carry on and complete the same, and to authorise him or them to use the plant, materials, and property of the contractors upon the works, and the costs and charges incurred in any way in carrying on and completing the said works are to be paid to the employer by the contractors, or may be set off by the employer against any money due, or to become due, to the contractors.

17. When the value of the works executed and not included in any former certificate shall from time to time amount to the sum of £ , or otherwise, at the architect's reasonable discretion, the contractors are to be entitled to receive payment at the rate of 80 per cent. upon such value until the difference between the per centage and the value of the works executed shall amount to per cent. upon the amount of the contract, after which time the contractors are to be entitled to receive payment of the full value of all works executed and not included in any former payment, and the architect is to give to the contractors certificates accordingly, and when the works shall be completed, or possession of the building shall be given up to the employer, the contractors are to be entitled to receive one moiety of the amount remaining due, according to the best estimate of the same that can then be made, and the architect is to give to the contractors certificates accordingly, and the contractors are to be entitled to receive the balance of all moneys due or payable to them under or by virtue of the contract within months from the completion of the works, or from the date of giving up possession thereof to the employer, whichever shall first happen. The contractors are to be entitled to receive any sum reserved for painting and papering or otherwise, on the completion thereof. Provided always that no final or other certificate is to cover or relieve the contractors from their liability under the provisions of clause No. 11, whether or not the same be notified by the architect at the time or subsequently to granting any such certificate.

18. A certificate of the architect, or an award of the referee hereinafter referred to, as the case may be, showing the final balance due or payable to the contractors, is to be conclusive evidence of the works having been duly completed, and that the contractors are entitled to receive payment of the final balance, but without prejudice to the liability of the contractors under the provisions of clause No. 11.

19. If the employer shall make default in paying any moneys to which the contractors may become entitled, for days after the amount thereof shall have been certified, or if the works be delayed for months by or under any proceedings taken by any other parties, the contractors are to be at liberty to suspend the works, and to require payment for all works executed, and all materials wrought up, and for any loss which they may sustain upon any goods or materials purchased for the works, and in such case the contractors are not to be bound to proceed further with the works contracted for. The contractors are to be entitled to such interest and at such rate as the architect shall certify upon all moneys payable to the contractors, payment of which may have been unduly delayed.

20. Provided always that in case any question, dispute, or difference shall arise between the employer, or the architect on his behalf, and the contractors as to what additions, if any, ought in fairness to be made to the amount of the contract by reason of the works being delayed through no fault of the contractors, or by reason or on account of any directions or requisitions of the architect, involving increased cost to the contractors beyond the cost properly attending the carrying out the contract according to the true intent and meaning of the signed drawings and specification, or as to the works having been duly completed, or as to the construction of these presents, or as to any other matter or thing arising under or out of this contract except as to matters left during the progress of the works to the sole decision or requisition of the architect under clauses Nos. 1, 9, and 10, or in case the contractors shall be dissatisfied with any certificate of the architect under clause No. 7, or under the proviso in clause No. 15, or in case he shall withhold or not give any certificate to which they may be entitled, then such question, dispute, or difference, or such certificate, or the value or matter which should be certified, as the case may be, is to be from time to time referred to the arbitration and final decision of architect, or in the event of his death or unwillingness to act, then of* architect, or in the event of his death or unwillingness to act, then of an architect being a Fellow of the Royal Institute of British Architects, to be appointed on the request of either party by the President for the time being of such Institute, and the award of such referee is to be equivalent to a certificate of the architect, and the contractors are to be paid accordingly.

## LEAKY SEWERS.

SIR,—Will any of your readers kindly afford me information on the following case? A barrel sewer, 2 ft. internal diameter, has been constructed of brickwork, 4½ in. in thickness, set in Portland cement, the top of the arch being from 1 ft. to 2 ft. below the general level of the ground. No connexions of any kind have been made, the end of the sewer being closed. Upon testing it, however, the sewer was found to leak to the extent of about 110 gallons per chain per twenty-four hours, the soil through which it is carried being rather damp.

I should be obliged for any information from practical experience as to whether this amount of percolation is excessive; and if so, about what would be a fair allowance for normal leakage. B. A.

## ENLARGEMENT OF CUMBERLAND INFIRMARY.

IT has been resolved by the governors of the Cumberland Infirmary to enlarge it. The intended additions and alterations consist generally of the re-arrangement of the present buildings, with such modifications as will adapt it to the requirements of medical science, the removal of the dispensary from the centre of the building, and so separating the in-door and out-door patients, and the increase of the total accommodation, by means of new wards, from 72 to 100 beds. The cost of the new buildings is estimated at 7,000*l*. Messrs. Cory & Ferguson are the architects employed. A committee has been authorised to carry out the plans, subject to any subordinate alterations which appear necessary to them in the progress of the work. The committee at the same time are requested to renew their efforts, in order to raise the further sum which shall be found necessary for the completion of the work.

## THE RATING OF THE ALBERT HALL.

AT the Court of General Assessment Sessions, held at the Guildhall, Westminster, Sir W. H. Bodkin, presiding, the corporation of the Hall of Arts and Sciences, Kensington-gore, appealed against the assessment committee of St. George's Hanover-square Union, in respect of the rating of the Albert Hall. From the statement of Mr. Poland it appeared that the parish of St. George's, Hanover-square, had set down the gross annual value of the Albert Hall at 12,000*l*., and the net rental at 10,000*l*., upon which they proposed to charge a rate of 3s. 4d. in the pound. Mr. Poland said that the expenditure of the corporation exceeded the receipts, and that under the terms by which the corporation were limited in their charter, they never could make it a profitable speculation. He called Mr. Cole, the secretary, who stated that although some of the boxes on the first tier were worth 1,000*l*. each, they became the property of the holders of them for all time, and they had the right to use them whenever the hall was open to the public. There were 800 seats reserved for the Commissioners of the Exhibition of 1851, who had contributed 80,000*l*. towards the expenses of the hall. There were about 3,000 left for the use of the public. There were about twenty musical entertainments in nine months, exclusive of competitions by organists. As a rule members did not let their

* The Council of the R.I.B.A. require that this blank should be filled in with the name of a Fellow of the Institute.

seats, for they were very frequently empty. The number of persons present at the entertainments varied from 3,000 to 10,000. At the close of the case, the chairman said the Bench were impressed with the belief that nothing had been shown to justify the high value set upon the place by the parish, and reduced the gross annual value from 12,000*l.* to 1,500*l.*, and the rateable value to 1,250*l.*, with costs.

## FORESTERS' HALL, WILDERNESS ROW.

SIR,—Referring to your article in last week's issue, under the above heading, the last clause of which runs as follows:—"The foundation-stone, which bears the name of the builders, Messrs. Henshaw & Co., does not indicate that any architect was employed," &c.,—we beg to inform you that the original architect of the building was Mr. W. L. Gomme; but, by some arrangement unknown to us, Messrs. George Lansdown & Pollard were appointed by the committee to superintend the execution of the works.

W. HENSHAW.

## THE PROPOSED NATURAL HISTORY MUSEUM AT SOUTH KENSINGTON.

IN the House of Commons, on Monday night, Lord Elcho asked the First Lord of the Treasury whether a vote of 30,000*l.* on account having been taken at the close of last session for the erection of a Natural History Museum at South Kensington, according to a design by Mr. Waterhouse, he would, before proceeding with the work, cause the design to be exhibited alongside of the three designs which were selected, after public competition by the Commission appointed by the Treasury in 1864, to award the prizes for the best designs for a new Natural History Museum. And whether, as these designs were submitted to the public in the Victoria Gallery, while the design of Mr. Waterhouse had not been obtained by any public competition, and had only been seen by a few members of the House of Commons, where it was exhibited in the Library at the fag-end of the session, he would choose some more public place for the exhibition of the designs.

Mr. Gladstone replied that the matter had advanced beyond the stage at which it would be possible to do what his noble friend wished. The House of Commons had passed the Bill, and 30,000*l.* had been given towards the actual erection of the building in reference to a particular design; and it was the duty of his right hon. friend the First Commissioner of Works to proceed in due course to give effect to the intention of Parliament. For that purpose all the specifications had been drawn and tenders invited for the contracts.

## SANITARY EDUCATION.

THE people of this country are not well informed as regards sanitary matters,—poor-law relief, &c. Could not the Post-office be made a means of distribution through the length and breadth of the land of short, pithy papers on these subjects, written in the form of tracts,—no official look about them, but simply well-printed, neat bills? They might be sent by millions, to every house, at a little expense. Acts of Parliament, if seen, are seldom read. Many people seldom see a newspaper; and if anything on sanitary matters were in it, it would not be read; but attention would be fixed on such papers as I have described, if sent to people's houses.

*Educate* the people on these matters: the results would be good. Tell them that filth and bad drains mean fever and small-pox; cleanliness and thrift are the way to independence.

CONSTANT READER.

## MICKLEHAM, NEAR DORKING.

THE chancel of the parish church, restored by the munificence of Mr. W. M. Praed, the lord of the manor, with an organ-chamber added at the cost of the parishioners, was re-opened on Saturday, February 17th, with an afternoon service. There was a large attendance of the neighbouring clergy, and others, the friends of the rector, the Rev. W. H. Harke, who met the Bishop at the rectory. "The Church's One Foundation," No. 320 of Hymns Ancient and Modern, was sung as the procession entered the church. The Bishop of Winchester preached an impressive and appropriate sermon, from Rev. ii. 12, in which he expressed the strong hope that the restoration of the chancel would be soon followed by the rebuilding of the nave in a style corresponding thereto. He spoke in a well-deserved strain of condemnation of the sham arches of wood and plaster, of the inconvenient galleries, and the wretched accommodation for the poor, and urged that no remedy of an effectual kind, short of rebuilding the fabric, could be attained; and, looking at the wealth of the parish, this end ought easily to be secured.

The chancel is in keeping with the Norman character of the church, having a large arch of oolitic stone. A stone screen traverses the upper opening of the organ-chamber. A reredos in alabaster and marble, and a light communion-rail in oak, decorate the east end; and memorial windows, by Clayton & Bell, have been added by relatives of deceased parishioners.

The whole work has been carried out from the designs of Mr. Joseph Peacock, by Goddard & Son, of Farnham, the contractors.

The only part of the church supposed to be of genuine antiquity is the tower, which could probably be retained, under a new design, for the body of the church.

## DAMP WALLS.

HAVING nearly completed the construction of a house on the banks of the Dart, a few miles from Dartmoor (where wind and rain are copiously supplied), I was advised by local residents before commencing to give my attention to the construction of the inner and outer walls, in order to resist the action of the weather, and, as they term it, the perspiration of the stone. Acting on their advice, I constructed the outer walls of 18-in. rubble limestone, from a neighbouring quarry, and mortar made with the lime burnt from the same stone, casing them inside with 4½-in. Bridgwater bricks, leaving a cavity of 2 in. between, and bonding the casing to the main wall occasionally with headers.

The whole of the inner walls and partitions I constructed entirely of bricks, thereby preventing the dampness so complained of, arising out of stone when fires, &c., are in use.

The entire surface externally is coated with Cleavers & Mist's Portland cement (properly gauged), which was completed in the fall of last year; and from that period up to the present there has not been the slightest appearance of dampness.

While constructing the house I also gave my best attention to the construction of the joiners' work. The window-frames are solid, with sashes hung.

I had taken such precautions as were laid down in an article on windows, appearing in the columns of the *Builder*, October 7th, 1871; but in this instance, under its present arrangement, I have failed. Can any of your correspondents, used to building in exposed situations, assist me?

BERRY POMEROY.

SIR,—The evil complained of by your correspondent "Devonian" is, indeed, a serious one, but I think it is remediable.

In the first place, he is in error in lining his walls with rubble slate: its utter non-absorbency and its natural coldness cause it to condense the water out of the contiguous saturated air. Internal damp walls commonly arise from this cause, as the quantity of water in suspension in the atmosphere increases with its temperature: thus a cubic foot of air at 70° will hold a given amount of moisture greatly in excess of air at say 50°; but if that air at 70° impinge upon a surface of say 50°, the air will deposit upon that surface an amount of moisture equivalent to the different points of saturation.

The course I should propose in new buildings, is to build the outer walls of rubble, say 10 in. or 12 in. thick, according to local custom, and leaving a *clear* air space of say 3 in.; build the inner walls of good *absorbent* brick, bonding the two together with iron bond 9 in. long, two bonding-irons to each superficial yard of wall, caulked at the ends, and bent *down* in the middle to drip off any moisture that may find its way to the cavities.

The cavities should be kept clear from mortar-droppings during the execution of the work, and air-bricks left top and bottom for ventilation, and means of drainage provided. The wet can never drive *through* such a wall, and there are no means of conduction except the window-cills, and these should be of non-absorbent stone, and the windows should have backs and elbows, and plenty of ventilation behind them.

I should recommend "Devonian" to weather-slate the outside of his house (it can be made ornamental), and to batten the inside, leaving a 2-inch clear cavity from bottom to top, *i.e.*, below the lowest floor to the cavity of roof, with plenty of air to it. The wet will then be prevented from entering the solid wall from the outside, and the saturated internal air from being condensed by contact with the cold slate lining.

THOMAS CHARLES SORBY.

SIR,—Can any of your correspondents give a cure for ground-damp? I have cut a drain 12 ft. deep, and laid drain-pipes 2 ft. below the cellar, 2 ft. apart; but it does no good. I know the almost impossibility of effecting a cure, but thought it possible that some of your readers may have applied themselves to the task; and, if not found a cure, have found some means of mitigating the evil, and should be obliged if they would say a word.

A. B.

SIR,—In the case where rain drives through the walls of a house already built, the most effectual remedy is to protect it with verandahs on the ground floor, and to case the walls above with roof tiling or slating. Painting or coating with soap and alum washes may be sufficient in some cases, and Portland cement facing in others; but none of these are so permanent or efficient.

A. J. B.

## THE PROPOSED CHANNEL TUNNEL.

SIR,—I have read with great interest your remarks upon the proposed Channel tunnel, printed in the *Builder* of the 27th ult., and most thoroughly agree with your opinion that the work would be of the greatest difficulty and expense, even if not impossible; and I submit that the experience I am about to describe to you quite bears you out in your opinion.

I have during the past three years been engaged as engineer in carrying out a system of deep intercepting sewers for the city of Norwich, which, from the quantity of water met with, have cost 110,000*l.* The city stands on a subsoil of sand and gravel resting upon the upper chalk, which in parts comes to the surface, and the low level sewers, which are about four miles in length, are all from 5 ft. to 19 ft. below the water level, were nearly all executed by tunnelling, frequently 50 ft., 60 ft., and even 80 ft., below the surface of the ground, and were chiefly excavated in the chalk, although between 2,000 ft. and 3,000 ft. of running sands were met with in some portions of the work. You mention that at Dover, which is close to the sea, water is found in wells at the sea level: now, the ordinary level of the rivers Yare and Wensum is only about 2 ft. 6 in. above the mean level of the sea at Liverpool (Ordnance datum), and Norwich is about twenty miles from the sea; yet in sinking our shafts in any parts of the works we always met with water at about the level of the river, the soil beneath this level being quite saturated.

To enable us to work we were obliged to employ a large amount of steam power, for the chief part of the time thirteen engines and pumps being at work day and night, and from seventeen to twenty millions of gallons of water being pumped up in every twenty-four hours. By continued pumping the water level for a radius of about three miles round the city was lowered several feet, varying with the distance, those wells nearest the works being, of course, dried to a greater depth and sooner than those at a distance. The chalk here, being the upper chalk, has continuous beds of flints at intervals of about 4 ft. or 5 ft., and the chief runs of water were found to be along these beds; the re-deposited chalk, here known as "chalk-marl," was partly encountered and was much less porous. The proposed Channel tunnel being entirely under the sea, and in the upper chalk covered by many fathoms of water, and, doubtless, saturated, it is difficult to understand how it will be possible to carry on the work unless it is executed in short lengths and at once lined with cast-iron segment plates. No masonry could be built, as it is clearly impossible to lower the *water level* in a porous soil, beneath the sea, and the percolation of the water would be so free and strong that any cement would be washed away before it could set. Even in our works this was clearly shown. When, through any accident

to the machinery, if the bricklayers were at work, the portions they were employed upon were ruined, and although every possible care was taken to make the work water-tight, many leaky places have occurred, and it is found to be extremely difficult to stop these, even under a head of water of less than 20 ft.; how much more difficult would it be under a pressure of as many fathoms?

Bearing in mind the difficulties and anxieties experienced in the works now mentioned, and which were under my own observation, I feel called upon to give you this information to strengthen the opinion you have expressed.

The risk to life would also be terrible. In our case, if a pump stopped through accident the water rose so fast that, in many places, if working only a few hundred *feet* from a shaft, all had to run for their lives. What chance, therefore, would men have at even one mile from a shaft, to say nothing of eleven miles? There is nothing so troublesome to deal with as water, as all those who are in the habit of so doing know to their cost.

ALFRED W. MORANT.

## A NOBLE OFFER.

THE people of Aspatria, in Cumberland, want a new Market-hall and Assembly-room; and at a public meeting, held on the 3rd instant, to receive the report of a committee on the subject, it was unanimously,—may we not add, magnanimously,—resolved that the sum of two guineas should be offered as a premium for the best plan of a building, embodying the principles laid down by the committee. We sincerely hope the proposition will meet with the response it deserves.

## A PARK FOR BIRMINGHAM.

AT the quarterly meeting of the Birmingham Town Council, on Tuesday, the Mayor read a communication from Mr. Alderman Ryland, containing a proposal from his relation Miss Ryland, of Barford-hill, Wandsworth, to present to the town a piece of land for the purposes of a public park. The land consists of about 54 acres, about two miles from the town-hall. In the event of the acceptance of her offer, Miss Ryland is prepared to lay out the land in an ornamental manner, at an expense of about 5,000*l*. The proposal was accepted with warm expressions of gratitude.

## THE TRADES MOVEMENT.

*Oxford.*—A meeting of the master builders in this city has been held, to consider the demands of the men in their employ to have their hours of labour reduced from fifty-eight hours and a half to fifty-four hours per week. After some discussion it was agreed that they would concede two hours per week to the men, requesting them to work ten hours per day the first five days, and allowing them to leave work on Saturdays at one o'clock. This decision has since been communicated to the men, who held a meeting, and resolved not to accept the proposal. Should the builders refuse to comply with the request of the men, a strike is intended to take place on the 1st of March.

*Shields.*—The joiners and house carpenters of North Shields have come out on strike. They asked for 28s. per week, instead of 26s., and to work fifty hours per week. They have nearly come to terms. The masters conceded the time and advance in wages; but they wanted the change to take place in May instead of March.

*Sunderland.*—A meeting of the bricklayers, masons, and plasterers of Sunderland has been held, when it was decided to demand fifty-four hours and 33s. per week, notices to be given at once, and expire on Monday, the 4th of March.

*Dundee.*—A meeting of about 300 sawmill workers in Dundee has been held, to consider the advisability of adopting a fifty-one hours' limit. Mr. William Stewart was called to the chair, and a resolution was passed to the effect that fifty-one hours should be a week's work, the change to commence on the 1st of April. It was also agreed to demand that wages should be paid weekly, instead of fortnightly, as at present; that all overtime should be paid at the rate of "time and quarter" for the first two hours, and "time and half" afterwards.

*York.*—A strike has taken place in York, possessing the new feature that it was a strike of one class of employés against another, and not between them and their masters. At the railway Plant Works, a class of workmen called "strikers," engaged and paid by the smiths, had struck against the latter on a demand to be paid 8s. in the pound instead of by the day, and ultimately the smiths, who, by the absence of the "strikers," were thrown out of employment, were compelled to succumb, and grant the requirements made of them. Following their example, the "strikers" at the Phœnix Ironworks at York have made the like demand of the smiths employed at that place, and the two bodies have stood out against each other. Between the two stools the masters come to the ground.

## CROWDED OUT.

Now, while Parliament is sitting on all subjects of reform,
Dilly-dallying with the people, to defer a coming storm,
'Twould be well and wise, I'm thinking, if our magnates would look down
On the overcrowded dwellings of the suffering poor in town.

We are told all men are equal, and that life's a common lot,
Yet very different tenements have different people got:
One reposes in a palace, where luxuriousness is law;
Another in a cellar finds a bed of rags or straw.

Have they ever seen St. Giles's?—ay, or noted Bethnal Green?
Or Golden-lane? or many a like abominable scene?
If they had, they'd hold my notion,—'tis a scandal gross to find
How little rich folk care about the humbler of mankind.

In foul courts and dismal alleys, scarcely fit for beasts of prey,
Tens of thousands of the sons of toil are thickly stow'd away.
Can their boys grow up in vigour? Can their girls be pure and fair,—
Drinking only poison'd water, and inhaling stagnant air?

I have seen one small apartment, measuring sixteen feet by ten,
Habited by thirteen persons, women, girls, and boys, and men;
I have heard their awful language, I have mark'd their savage glare,
As they came in from the reeking street to lie down—anywhere.

Can we wonder that our prisons should abound in youthful crime?
Or that countless numbers perish every year before their time?
In the rookeries of London 'tis that pestilence begins,
To punish not the poor alone, but rich folk for their sins.

For commerce, banking, merchandise, proud buildings men will raise,
With money that has oft been made in very dirty ways;
But, save a Peabody, a Coutts, or Shaftesbury, again,
How few have thought of decent homes for London working men?

There's a loud cry for more churches, yes! and more church livings, too,
But is there not as urgent work for Christian men to do?
Let them build schoolrooms and houses for the young, and horny hand,
And they'll prove as noble altars as can grace our favour'd land.

Let Puritans who argue for an arbitrary clause,
To put down grown-up vices, just consider nature's laws;
Men cannot thrive, as rats do, in a sewer or a sink,
And from holes that are not homes arise the evils born of drink.

It is not by means coercive, by invidious rules and Bills,
The demon can be thwarted who both soul and body kills;
Sow the seeds of moral beauty where rank weeds now darkly creep,
And a better human harvest we in God's good time shall reap.

Oh, Ministers of ancient Truth!
Oh, Ministers of State!
Whose proud ambition 'tis to see
Our country good and great;
Put aside your party warfare,
In a common cause combine,
And your names as saints and sages
In the Book of Life may shine.

G. LINNÆUS BANKS.

## A CONCRETE HOUSE.

SIR,—Having nearly completed a handsome Gothic house in the new material, Portland cement concrete, I should be happy to allow any one interested in the subject to inspect the same for the next ten days on presenting his card to my gardener on the premises. The house is within sight of the Addlestone Station on the London and South Western Railway, and about twenty miles from London.

*Addlestone.* G. B. EDWARDS.

## CAUTION TO ARCHITECTS.

SIR,—Let me caution architects and assistants in the provinces against a person who called at my employer's office on the 10th under pretence of seeking employment as draughtsman, but in reality begging: he got a trifle from me by making statements which I have since ascertained to be entirely false. If any gentleman visited by this individual will have the goodness to detain him, and send me a note or telegram, I shall be delighted to prosecute. He is of middle height, shaves his chin, his whiskers and moustache being brown, inclining to grey; was dressed in a worn-out frock coat, tall hat, flannel shirt, and narrow red necktie; carried a roll of trashy engravings, which he offered for sale, representing himself as having had twenty-one years' experience; named some very well-known London firms as his former employers; said he had been five months in hospital with fever, &c.; and made attempts to shed tears, and so on.

C. HANBURY.

39, *Castle-gate, Nottingham.*

## ASPHALTE AND ITS PROGRESS.

SIR,—In a recent number of the *Builder*, a correspondent says,—"However the question of using asphalte for roadways may be decided, we are convinced that good, natural mineral asphalte may be properly and efficiently used for footways, and the attention of parish authorities may very properly be called to the subject. Very few specimens until now were laid down for footpaths, but the General Asphalte Company having obtained permission of the Board of Works to lay down their asphaltes on the footpaths on the south side of the Victoria Embankment leading to Blackfriars Bridge, we shall have opportunity for judging." Allow me to state that mineral asphalte has already been used to a very large extent for *footways* in the parishes south of the Thames, where I have laid several miles of my asphalte, known as "Wright's Tar Pavement," and as I am still engaged in laying down considerable quantities, I have every reason to believe that experience has proved this material to be a success.

W. WRIGHT.

## VENTILATION OF RAILWAYS.

SIR,—May I appeal, through your influential columns, to the various Railway Companies (except the Metropolitan, which has a sensible arrangement), to adopt a little sanitary measure much needed; videlicet, to make the small ventilators over the doors *permanently fixed open without the possibility of their being closed.*

No one who has to travel daily from a near-London station can fail to realise the sickening nausea produced on leaving the breakfast-table and fresh air, and plunging into the atmosphere of a railway carriage, in which several obese specimens of both sexes have, for the previous thirty miles, carefully bottled and corked themselves, without the slightest possible inlet for fresh, or outlet for foul, air.

The dreaded, but almost imaginary bugbear "draught," would do but a trifle of mischief compared with the injury to health caused by the poisonous atmosphere.

A. J.

*** "Draughts" are no imaginary evil, and work more rapidly even than vitiated air; but railway carriages may be properly ventilated without necessarily incurring this evil,—and should be.

## ARCHITECTURAL EXAMINATIONS IN THE COUNTRY.

SIR,—It seems to me a great mistake to confine the examination of architectural students to London. It is not all of us, especially assistants, who can come up to London for a week or a fortnight, whereas the papers might be sent down from the Institute to the different large towns, and put into the hands of the local architectural associations, and so students from that town or district might come up to be examined. After each examination I would publish the questions and a list of candidates, successful or otherwise. I think, then, in a very short time, almost every student would present himself for examination, especially if architects would also make it a point to accept no assistant that had not passed the preliminary. At present principals are indifferent about the education of their pupils, and parents are ignorant of the advantages of an examination. Depend upon it, if the subject were well ventilated, a great revolution would be effected in the education of the profession. Both parents and principals would be proud to have it known that their sons or pupils passed with honours the examination. In fact, principals would be obliged to see to the education of their pupils for their own advantage. It would soon be known that pupils from such and such an office never presented themselves at the examination or failed to pass it: the why and wherefore would be asked, and thus the working of that office would be exposed. In giving a list of candidates, I should say from whose office they came. I think the matter could be worked easily and inexpensively.

E. SCOTT RIDSDALE.

## CHURCH-BUILDING NEWS.

*Upper Armley.*—Christ Church has been consecrated. The style of architecture adopted is Early English, of the twelfth century. The plan comprises a clearstoried nave, with north and south aisles and chancel, with organ-chamber and vestry on the north side. Beneath the organ-chamber is the heating-chamber. At the west end of the church, opening into the nave by an arch, in three orders, is the tower, 20 ft. square at the base, and rising to a height of 117 ft. It is divided into ringing-chamber and belfry-stages. The entrances to the church are by means of a south porch and south entrance in chancel. There is also a separate entrance to the vestry. The nave is 83 ft. long and 32 ft. 4 in. wide, and is divided into five bays by an arcading, resting on moulded columns, having moulded and carved caps and moulded bases. The chancel is 33 ft. long and 24 ft. wide, and is separated from the nave by a moulded chancel-arch, having moulded piers and moulded and carved caps and moulded

bases. The total internal length of the church, from east to west, is 137 ft.; width, 60 ft.; height from nave-floor to ridge, 56 ft. The windows throughout are lancet, with coupled lights in the aisles and tripled lights in the clearstory. The chancel lights are similar, but bolder in treatment, and having nook-shafts with moulded caps, bands, and bases. The east window is tripled, with a vesica light over. The ringing-chamber in the tower is arcaded. The belfry-stage has coupled openings on each face, fitted in with louvre boarding. The floors of the passages are laid with cleansed Bradford flagging. The chancel floor is laid with tiles, in geometrical patterns, and there are wood floors under all the seating. The seats are open benches, of pitch pine, with ornamental-cut ends. The reading-desk, of oak, is placed at the south pier of the chancel-arch, and the pulpit, also of oak, at the north pier of the chancel. The communion-rail, table, and framework for tablets are also of oak. The font, which is of stone, is placed under the tower. The roofs are open timber, with principals, having curved braces, purlins, ridge, &c. The rafters are framed. The whole of the roofs are double-boarded, and covered with green Westmoreland slates, having a moulded stone ridge. The roof of the tower is leaded. The walls throughout are of stone, of great thickness, faced externally with double-broached sandstone, from the Horsforth quarries, and plastered internally. The stone dressings throughout are tooled. The church is lighted by means of gas-standards and brackets made of bronze. The church, which is heated by means of hot air, will accommodate 651 adults; but this amount can be greatly increased, if found necessary, at a future time. The total cost of the church, including site, bells, and clock, will be between 7,000*l.* and 8,000*l.* The whole of the works and fittings have been carried out from the designs of the architects, Messrs. Adams & Kelly, of Park-square, Leeds, and under their superintendence. The following are the contractors:—Mason and joiners' work, Mr. Thomas Whiteley, Leeds; slaters, Messrs. Watson & Wormald; plumber and glazier, Mr. Geo. Wilson; iron-founders, Messrs. Heaps & Robinson; plasterer, Mr. Walsh, Upper Armley; painter, Mr. W. E. Swithenbank. The pulpit has been made by Mr. Tomlinson, of Leeds; the font, by Messrs. Fielding & Dark. The carving has been executed by Mr. Stevens. The gasfittings and ornamental ironwork have been supplied by Messrs. Jones & Wellis, of London; and the heating-apparatus by Messrs. Haden, of Trowbridge.

*Marton.*—The quaint old timber church at Marton, whose history extends back to the thirteenth century, has recently being undergoing the process of restoration,—a work rendered necessary by the dilapidated and unsafe condition of the original structure. The inroads of time had reduced it to such a ruinous condition that an effort was made by the incumbent, the Rev. J. P. Firman, and others interested to bring about a much-needed restoration. It had been found, upon an examination of the lower part of the main timber supporting the tower and spire, that the portions below the surface were completely gone. Mrs. Barber, the daughter of the late Rev. John Darcey, incumbent of Marton for thirty-eight years, offered to restore the chapel at her own expense, if Mr. Firman would promise her his aid and superintendence in the undertaking. The offer was accepted. The state of the building having been gone into by Mr. Butterfield and Mrs. Barber, plans were at once drawn by the architect and submitted to the incumbent and parishioners, and afterwards to the bishop, whose united sanction and approval they at once secured. Upon examination it was found that the timber supports for the tower were in a very decayed condition, and it was found necessary to renew the four square compound posts at the angles of the tower, which are strengthened by struts in the form of buttresses. How they have kept their position so well is a marvel, having no foundation to rest upon beyond that of a large stone simply sunk into a bed of loose sand. In digging out for the new foundation some pieces of ancient tiles and a portion of what seems to have formed the surface of some wall-painting; also some copper coins, of Queen Anne's reign. Among the old tiles turned up was one bearing on its surface a clear representation of two keys, with an unsheathed sword between them, in yellow glazed work on a red ground. The surrounding farmers placed their teams at the disposal of the incumbent for the conveyance of materials. Under the direction of the builders, the work throughout has progressed satisfactorily. The spire, in its new garb of oak shingles, gives the appearance at a distance of being a stone erection. The chancel, which is now in timber and plaster, to correspond with the nave, adds to the general effect, and is an improvement upon the old brickwork, while internally the work of restoration accomplished is such as to conduce to the comfort of the congregation. Perhaps one principal alteration that has been effected has been the flight of nearly twenty stone steps, leading from the road up to the west entrance, which hitherto has not been made use of, as its nearness to the road indicated it ought to have been. Part of these steps are outside, and the remainder within the tower. A new oak font, lined with lead, has been designed to harmonise with the general materials of the church. The entire windows are filled with stained glass. Figures of St. Andrew and St. James occupy the east windows of the aisles, and simply quarry glass with some little colour is used in the others. The entire work has been carried out under the supervision of Mr. Butterfield, the builders being Messrs. W. & H. Restall, of Bisley, Gloucestershire.

*Bromsgrove.*—It is proposed to erect a new church at Bromsgrove, from the design of Mr. John Cotton, architect. The present state of the subscription warrants the supposition that it will be carried out to the full extent of the plans. The origin of the structure was a sum of 500*l.* bequeathed by the late Rev. More-Molyneux, provided the church was begun within twelve months of the date of the bequest, otherwise the money was to revert to the Diocesan Church Building Society. The twelve months alluded to will expire towards the end of April, and consequently the work must be commenced in a few weeks. Nearly 3,000*l.* have already been raised towards the estimated cost of about 4,000*l.*, which will include 3,500*l.* for the building and the rest for improvements to site, boundary-walls, and other incidentals. The originator of the building fund, the Rev. More-Molyneux, was connected with the town through relationship with the Rev. G. W. Murray, the present vicar of Bromsgrove. The Bishop of Worcester gave 500*l.*, and the Diocesan Society made a grant of 250*l.* The site was purchased of Mr. Chesshire, of Birmingham, and contains about three-quarters of an acre. There will be no burial-ground, as there is a capacious cemetery for the use of the town and district. The architect has chosen the Early Decorated style. There will be an apsidal chancel, with organ-chamber and vestries for clergy and choristers, nave and aisles, south porch, and tower at north-west corner. The tower will have a tapering spire, the altitude of the spire being about 175 ft. from the ground. There will be 600 sittings, most of them free, exclusive of the choir benches in the chancel. At first, chairs will be used in the nave, but eventually red deal benches will be fixed when the funds are forthcoming. The church is intended to be built with the local sandstone, the walls being lined inside with buff-coloured bricks, relieved with stone strings and bandings; the dressings, arches, window tracery, &c., being executed partly in Bath and partly in local grey sandstone. A basement will be sunk to accommodate the heating apparatus. The system of warmed fresh air will be adopted, ventilators being arranged in the roof to carry off the vitiated air.

*Malling.*—It is proposed to erect a new chapel at the workhouse. Towards this project the sum of 200*l.* is still required, only 750*l.* having been yet subscribed. It is necessary that the work shall be begun as early as possible in the forthcoming spring. Plans have been adopted, designed by Mr. E. W. Stephens, and the tender of Mr. Church, of East Malling, has been virtually decided upon.

*Syston.*—The parish church of Syston has been restored, at a cost of 1,000*l.*, and re-opened. The earlier vestiges have as far as possible been replaced in the new work or otherwise conserved. Additional accommodation has been obtained by the redistribution of the seats. Much remains to be done to render the church complete and provide a sufficiency of accommodation. The peal of bells has been re-adjusted. The church is warmed of a genial heat, needed here by the absence of the porch, which for the present has been deferred from lack of funds. The greater portion has been executed by Mr. Thomas Black, builder, Barrow, assisted by Messrs. Moss & Sharp, of Syston; the heating apparatus by Messrs. Hunt & Pickering, of Leicester; the bell-founders being the firm of Taylor, Loughborough. Mr. Ordish, of Syston, was the architect employed.

*Penn* (*Wolverhampton*).—The church has been restored and enlarged. The peculiar situation of the edifice at a junction of roads permitted of an extension in one direction only,—the east; and in that direction the extension could only be made after overcoming the sharp rise in the ground. The plan was to take down the chancel and entirely rebuild it, after lengthening the nave by the addition of two bays. This has been done, according to the plans of Mr. Paley, architect, Lancaster, by the Messrs. Higham, builders, Wolverhampton, at a cost of 3,000*l.* The nave has been lengthened by the addition of two bays, and provides increased accommodation to the number of about 150. The new seats are open low pews of pitch pine. The seats of the other parts of the church have been altered to the same pattern. The roof of the nave, as of the chancel and the chancel aisle, are open and of oak. The chancel is divided from its aisle by three ornamented and moulded arches. The old stained window of the chancel is let into the aisle, while the chancel itself is lighted by a new stained glass window of five lights. Messrs. Bratt, of London, were the artists. The reredos is of alabaster, inlaid with mosaic, representing in the centre a cross, on one side a vine, and on the other corn, emblematical of the bread and wine of the Lord's Supper. To these are added the emblem of the four Evangelists, two upon each side. The lower large undecorated slab of alabaster was found in the church during the alterations. The chancel is floored with encaustic tiles, the altar-rails and screens are of wrought iron work, and the chancel stalls are of carved oak. A new organ, when built by Walker, of London, will be placed at the east end of the north aisle. The whole of the church has been re-floored, and is heated by an apparatus supplied by Mr. Blakemore, of Wednesbury.

*Ipswich.*—The church of St. Mary, Stoke, has been again enlarged and re-opened. The enlargement determined upon was to build a new nave and chancel on the south side of the existing church, so that the old nave and chancel should become a north aisle to the new building. This was perhaps the only way in which the church could be enlarged; but it was attended with the serious drawback that, without going to great expense, it was impossible to give the building an imposing external appearance. The new nave and chancel are the same height throughout, and are covered by a continuous roof, the style which has been adopted being the Perpendicular, to which the older portions of the church belong; the nave nearly equals in length the older nave and chancel, and the new chancel extends 10 ft. to the eastward, the natural and unavoidable consequence being that what with north aisle and transept, vestry, south porch, and a small south transept used as an organ-chamber, the irregularities are too great to be pleasing. The walls of the new part are faced with cut flints, with dressings of Bath stone; the gable of the east end and also the upper part of the south porch, which has been rebuilt with considerable alterations, being ornamented with alternate squares of flint and white stone. The large east window has been filled with stained glass, by Mrs. Lacon, of the Goldrood, in memory of her late husband, Capt. Lacon, R.N. Each of the five lights contains a representation of one or more of the leading incidents of the life of our Saviour. This window was supplied by Messrs. Clayton & Bell. The architect employed was Mr. Butterfield, and the contractor was Mr. G. Hewitt, of Ipswich. The stonework was done by Messrs. Chinnock & Co. The additional sittings number 318.

*Lugwardine.*—The parish church has been restored and reopened. The sloping walls between the transepts on either side the church obstructed the view and interfered so seriously with the hearing, that the question of how to remedy this objectionable state of things became a most difficult one to deal with. This difficulty, however, has been overcome by the erection of a longitudinal arcade on either side of the nave, and also transverse arches to carry the transept roofs, so converting the double transepts into gabled aisles. The external parts of the building have not been altered more than was found to be absolutely necessary to carry out the design of restoration, the only additions being the building of a vestry on the north, and an aisle on the south side of the chancel, for the organ and the accommodation of the children. The plain arch which separated the chancel from the nave has

been replaced by an arch the entire width of the chancel, enriched by moulding, in keeping with the early work. There also at one time existed an arch between the tower and the nave which had been closed up, but has now been opened, and exposes the west window of the tower to view. The nave and northern transept roofs have been restored without any alteration in the design. The roofs of the southern transept, the new chancel aisle, and vestry, are all new and in keeping with the other parts of the building, and the high pews of bygone days have been supplanted by modern low seats of varnished deal. The font is of hard blue stone, and stands on the north side of the nave, near the tower entrance. The pulpit is of oak on a stone base, and the whole of the chancel fittings are oak, as is also the lectern. The main entrance is through the tower, and now that the screen has been taken down from the tower arch, the whole church is thrown into view. There is a second entrance at the west end of the south aisle, as well as an entrance for the clergy through the vestry. The lancet window at the side of the chancel has been restored, and a three-light window, moulded and in keeping with the chancel arch, has replaced the poor modern window which formerly existed. The transept windows have all been restored, and the little Norman window is introduced at the west end of the south aisle. The east window has been filled with stained glass, supplied by Clayton & Bell, of London, at the cost of Mr. Hutchinson, of Longworth. The floor is laid with encaustic tiles, manufactured by Mr. William Godwin, of Lugwardine. The work has been carried out by Mr. James Bowers, of Hereford, under the supervision of Mr. F. R. Kempson, at a cost of nearly 3,000*l.*

*Eastcheap, London.*—St. Clement's, near Eastcheap, has been re-opened, after re-arrangement by Mr. Butterfield. The whole of the ancient oak carving has been preserved, and the canopy of the pulpit is decorated. The seats are in modern fashion, all open. The organ has been improved by Messrs. Gray & Davison. The ceiling has been brought out in colour.

*Malmsbury.*—The church at Lea is about to be restored under the direction of Mr. C. J. Phipps, of London, architect.

## SCHOOL-BUILDING NEWS.

*Sheffield.*—The formal opening of the boys' portion of All Saints' Schools has been celebrated. The schools are in connexion with the church erected by Sir John Brown, on Ellesmere-road, and they occupy a site, given by the same donor, immediately in the rear of that edifice. The building is in three blocks, one of which is the boys' school; the second, the infants' school; and the third, the girls' school. It is in the Gothic style of architecture, so as to correspond with the church. The entrances of both the boys' and girls' schools are surmounted by bell-towers, 45 ft. high. There is sufficient accommodation for 300 boys, the same number of girls, and an equal number of infants. Considerable attention, we believe, has been paid to ventilation. The architects were Messrs. Flockton & Abbott.

*Leek.*—The St. Luke's Church boys' new school has just been opened for use. The school-room is 60 ft. by 26 ft., 14 ft. high at the eaves, and 23 ft. in the centre. It has class-room, porches, &c. It is of red brick, with stone dressings to the buttresses, windows, gables, &c. Mr. Sugden was the architect.

*Burton-upon-Trent.*—A Primitive Methodist new school-room has been erected here, and has been opened also for divine worship and Sunday-school tuition. The building is in the Romanesque style of architecture, is 52 ft. by 28 ft. in size, has two class-rooms and out-offices; and the society now connected therewith numbers twenty members, and about ninety scholars. The school-room will accommodate 300 children.

*Castle Fields, Shrewsbury.*—The new schools for the district of All Saints have recently been opened by the Bishop of Lichfield. The building consists of an infants' school, with porch and lavatory, and a girls' school and class-room, on the ground-floor. A square bell-turret, with tiled roof, contains the stairs leading to the upper or boys' school, which has also a class-room. The total number of children for which provision is made is about 260. The walls are built of red brick, relieved with bands, &c., of white and blue brick, and the roofs are covered with Staffordshire tiles; wooden frames, mullions, and tracery are used for windows. Mr. Edward Haycock is the architect, and the work has been carried out by Messrs. Bowdler & Darlington, for 852*l.*

*Stapleton* (*Shropshire*). — The first stone of a new school for this parish has been laid, by the Venerable Archdeacon Allen. The school will stand on a convenient site, facing the east end of the church. A mistress's house will be provided. Brick, with stone dressings, are the materials to be used. The roofs will be covered with Ridge Hill brindled tiles. The contract has been taken by Mr. W. Jones, builder, Stapleton, for 474*l.* Mr. Haycock, of Shrewsbury, is the architect.

*Easton* (*Bristol*).—The chief corner-stone of new school premises for the parish of St. Gabriel, Easton, has been laid. The site adjoins the church. The schools, which have been a little while in progress, are being built in accordance with the requirements of the Education Department, from designs by Mr. Neale, of Bristol, architect. The building will be of brick, in a similar style to the church, and the rooms will have open-timbered roofs. There will be provided two schoolrooms, 65 ft. by 20 ft., with a class-room, 18 ft. by 20 ft., to each; together with master's residence. The contract has been taken by Messrs. Wilkins, at 1,260*l.*, but, owing to the depth of the foundations, the total cost, including fittings, will amount to 1,550*l.* The school, when complete, will accommodate 600 children.

*Tunstall.*—National schools have been opened here. The two schoolrooms on the ground floor have been considerably increased in height, and are used, one as the girls' school, and one as the infants' school. On the upper floor an additional room, which is used as a boys' school, has been added, 71 ft. by 26 ft., and is so arranged that in connexion with the old one on the same floor it forms one adapted for public gatherings in the district. The façade of the building, which has a considerable frontage to King-street, is in the Gothic style, executed with red bricks, and relieved by bands, &c., of white and blue bricks. The central portion of this front projects slightly before the sides, and is carried up in a gable form surmounted by a lofty bell-turret, finished on the top with a gilded iron cresting. The whole is from the design of Mr. G. B. Ford, architect, Burslem, and executed by Mr. Beech, builder, Tunstall.

## VARIORUM.

"THE Pocket Technical Guide and Measurer for Builders and Surveyors. By A. C. Beaton (Lockwood & Co.)," professes to give in a waistcoat-pocket book, 3 in. by 2 in., a complete explanation of the terms used in building-construction, technical directions for measuring work in all the building trades, and complete specifications for houses, roads, and drains, and of course it does not do it. "Distilled books," says Bacon, in one of his Essays, "are like distilled waters, flashy things." And this is true, even when they are distilled by a knowing hand; but what is to be said of a work of this kind when it is performed by one who can thus instruct anxious students,—"The mouldings running round arches . . . . is termed an archivolt;" "The upright bar of a window is called the Mullion;" and (more instructive still) "A Pinnacle, or Spire, is that part of any building which rises above the roof." We have no pleasure in breaking a butterfly on a wheel, but good nature has its limits.—— The *Law Magazine and Review* (Butterworths) has become a monthly journal of jurisprudence for both branches of the legal profession at home and abroad. The change from a quarterly to a monthly journal will make it a more effective organ of the profession than it has hitherto been throughout its long and useful career. "Every lawyer feels that the changes coming upon us both in regard to law and procedure are of the very gravest possible nature. The fusion of law and equity, the alteration of the procedure of our courts, the reform of our system of appeals, of our land laws, of our jury system, are sufficient to indicate how important are the questions which are already to the front. Other journals will discuss them from the point of view of the public, the *Law Magazine* from that of the legal profession." The first number, now before us, includes a very interesting notice of the late Mr. Edwin Wilkins Field, the artist-lawyer, written with a right appreciation of his energetic character and genial qualities.

## Miscellanea.

**Watchman's Electric Tell-tale Clock.**—Messrs. J. Bailey & Co., of the Albion Works, Salford, have just introduced to public notice a new tell-tale clock, as a certain detector of the watchman who is remiss in his rounds. The apparatus is the invention of Mr. F. M. Pratt. It consists of an ordinary clock, to which is attached a cylinder, revolving upon a vertical axis, and driven by the mechanism of the clock. The cylinder is covered with a sheet of paper, attached to it by spring clips, so that it can be removed when used, and a clean sheet substituted for it. Each sheet of paper is divided longitudinally into hours, and, if necessary, into parts of hours, and crosswise into as many divisions as there are places to be visited by the watchman. Each cross division has a corresponding marker, which indicates, by the impression it makes upon the paper, the time the watchman visits the place connected with that marker. The markers are actuated by electro-magnetic apparatus, and in each room to be visited is an actuating knob. One objection to all such apparatus is, that the watchman of premises has his attention perpetually distracted by being made watchman of the tell-tale clock; and while listening to some suspicious sound, or watching some suspected spot, is liable to come under suspicion himself by forgetting all about the time and the tell-tale just when he is attending most diligently of all to his duties, unless, indeed, he be more concerned about watching the clock than the premises.

**The Railway Interest.**—It has lately been shown that 14,247 miles of railway are now being worked in the United Kingdom, on which have been expended a sum than 500,000,000*l.*, which is five times the amount of the annual value of all the real property of Great Britain, and two-thirds of the national debt. The gross net annual revenue of the railways in this country, after deducting all working expenses, exceeds 22,000,000*l.* sterling, more than the total revenue, from all sources of Belgium, Holland, Portugal, Denmark, Sweden, and Norway. The companies have in their direct employment more than 100,000 officers and servants. The value of the rolling stock exceeds 30,000,000*l.* The consumption of coal and coke by railway-engines amounts to between 2,000,000 and 3,000,000 tons a year; so that in every minute of time throughout the year above 4 tons of coal are consumed, and 20 tons of water are flashed into steam. The consumption of fuel is about equal to the amount of coal exported from Great Britain to foreign countries. There are more than 3,000,000 tons of iron laid down in rails alone, and the chairs would weigh nearly 1,000,000 tons; so that there are not far short of 4,000,000 tons of iron on the permanent ways of the United Kingdom, and of these about 30,000 tons of rails have to be every year replaced. No one will deny that our railways make a figure in the world.

**Book Publishers.**—In the last issue of "Fors Clavigera," Mr. Ruskin says, "I find, in the present state of trade, that when the retail price is printed on books, all sorts of commissions and abatements take place, to the discredit of the author; and, I am convinced, in the end, to every one else's disadvantage. I mean, therefore, to sell my own books, at a price from which there shall be no abatement—namely, 9s. 6d. the plain volumes, and 19s. the illustrated ones. My publishers, Messrs. Smith, Elder, & Co., will sell all my books at that price over their counter; and my general agent, Mr. G. Allen, Heathfield Cottage, Keston, will supply them at the same price, without abatement, carriage paid, to any person in town or country, on remittance of the price of the number of volumes required. This absolute refusal of credit or abatement is only the carrying out of a part of my general method of political economy; and I adopt this system of sale, because I think authors ought not to be too proud to sell their own books, any more than painters to sell their own pictures."

**The Institution of Civil Engineers.**—At the meeting of the members of this Society, on Tuesday, the 20th instant, Mr. T. Hawksley, the president, being in the chair, it was moved, seconded, and resolved unanimously, "That in consequence of Tuesday, the 27th of February, having been appointed by her Majesty 'to proceed to St. Paul's Cathedral to offer Thanksgiving for the recovery of his royal highness the Prince of Wales,' the meeting be adjourned until Tuesday, the 5th of March.

**Silicate Paint.**—A curious deposit of almost pure silica was recently discovered in one of the hills in North Wales. The deposit lies in a basin of volcanic origin, at a considerable level above the sea, and forms the bed of a small lake about two miles in length and one mile in width. Amongst its uses, it is stated that it would be especially suited for producing crystal glass, and in the manufacture of porcelain, especially if the small percentage of oxide of iron were removed from it. At present the only use made of this silica is in the production of paint. For this purpose it is especially suitable, as it mixes freely with the pigments and oils, and is worked with ease. Moreover, it entirely resists the action of any acid, and withstands the action of heat. Added to these advantages, are those no less important, that the paint has no metallic base in its composition, and when laid on it becomes extremely hard, and polished on the surface. The proprietors of this deposit have for some little time past been producing this paint at the works of the Silicate Paint Company, Fenwick-street, Liverpool, and extended trials have been obtained with it. Time is necessary to establish the correctness of what is stated about this paint, but it seems deserving of trial.

**The Antiquities of Surrey.**—At a committee meeting of the Guildford Institute a printed circular from the secretary to the Surrey Archæological Society was read, containing a resolution adopted by the Council, affirming the desirability of obtaining a museum in the county in which to place the antiquities of Surrey belonging to the Society. The circular alluded to the various places in which a museum might be established, as Guildford, Reigate, Kingston, Croydon, and Southwark; and in reference to the first, remarked that it had been observed in favour of Guildford that it was the county town. Alluding to Croydon, the circular mentioned that the town had a fine literary institution, which had offered to place a room at the disposal of the Council, and take charge of the collection entirely free. The committee considered it very desirable to take steps towards securing the collection at Guildford, and appointed a sub-committee, with power to add to their number, to communicate with the Archæological Society on the subject. Acting on the part of this committee, Mr. Capron, on the 6th inst., asked for information as to the probable space which would be required for the collection, both at the present time and for some future period. The correspondence was to be laid before the Council on the 21st.

**Stained Glass for Christ Church, Oxford.** A correspondent of the *Times*, describing the work recently done in the Cathedral of Christ Church, Oxford, says,—"The whole of the choir has been relaid with a beautiful design of costly marbles, with inlaid emblematical figures of Maltese workmanship, which struck me as being of extreme beauty; and I am informed that new stalls and woodwork are being prepared for the whole building. The cathedral never had any ancient glass except a few fragments of great richness. But a lady connected with the cathedral has offered to defray the cost of the rose-window and the four Roman lights below. A window has already been filled in memory of the late lamented Mr. E. Denison, M.P., and others are in progress in memory of Mr. John Walter, jun., and Mr. F. Vyner; and the friends of the late Marquis of Lothian will be glad to hear that the present Marquis proposes to give a large window in memory of his distinguished brother."

**Destruction of Brambridge House.**—A fire has taken place in the extensive mansion of Mr. Thomas Fairbairn, situated at Brambridge, on the Itchen. Since it has been purchased by its present occupier a new drawing-room and conservatory, with other expensive alterations, have been carried out at a cost of 25,000*l*. The fire originated in the flue of the nursery, in the top story, and gained such a mastery that it was not got under until the entire front of the building down to the ground-floor ceilings was gutted, and a large portion of the back part also destroyed. The sweeps had been employed in the room adjoining the nursery on the previous day. All the valuable pictures are saved, but scarcely any portion of the mansion but the walls is left. The damage done cannot be less than between 50,000*l*. and 60,000*l*." Near the house was a small Roman Catholic chapel, where Mrs. Fitzherbert is said to have been secretly married to George IV.

**Brickdust Mortar.** — According to the *Journal of the Franklin Institute*, in the Spanish dominions ordinary brick-dust, made from hard-burned, finely-pulverised bricks, and mixed with common lime and sand, is universally and successfully employed as a substitute for hydraulic cement. The writer, during an engineering experience of six years in Cuba, had ample opportunity for testing its merits, and found it in all respects superior to the best Rosendale hydraulic cement for culverts, drains, tanks or cisterns, and even for roofs; whether for setting flat tiles, or for making the usual tropical concrete flat roof. It is regularly known there as an article of commerce, sold in barrels by all dealers in such articles at the same price as cement. The proportions used in general practice are one of brick-dust and one of lime to two of sand, mixed together dry, and tempered with water in the usual way. The Romans, our readers will remember, used pounded bricks in their mortar. Its presence serves to distinguish Roman work in England.

**Water Supply of the Metropolis.**—In the House of Commons Mr. Stapleton asked the President of the Board of Trade whether it was intended to take any steps under the Metropolis Water Acts, 1852-72, in consequence of the polluted state of the water recently supplied by some of the water companies. Mr. Fortescue in reply said a water commissioner has been appointed to examine, at least once a month, whether the water of the various companies is fit for use, and to make a report respecting it both before it undergoes the process of filtration and before it passes into distribution. He is also instructed to make a special report when there is any necessity for such a step. In the case to which the question refers he was asked to make a special report, which I have just received. After the consideration of that report I shall be able to decide whether there should be any further inquiry into the water supply of the particular companies referred to.

**Sewer Gases and External House-Protecting Drain Traps.**—The passages by which sewer-gas usually enters houses are soil-pipes from water-closets, and waste and overflow pipes from cisterns, baths, lavatories, bath and lavatory safes, and sinks. Water-closets may be ventilated by extending the soil-pipe through the roof, or by means of two small pipes tapped into the D trap and carried through an external wall. There is a new trap (Mansergh's), manufactured by Doulton & Co., of Lambeth, which is intended to prevent the ingress of sewer-gas by the second set of passages, and is always to be placed outside the house. When waste-pipes are connected to house-drains by such means, the bell-traps, now commonly attached to sinks, and the syphon-traps on cisterns and other overflows may be dispensed with, as this arrangement cuts off the communication between the house and the sewer.

**Northwich Workhouse.**—At the last meeting of the Northwich Board of Guardians, the clerk said that tenders for the erection of infectious wards at the Workhouse had been sent in and examined by the committee, who submitted the following for the consideration of the Board: — Mr. Peter Hodkinson, Booth-lane Head, Sandbach, 745*l*. 10s. 6d.; Mr. W. Leicester, Northwich, 750*l*.; Mr. James Bostock, Northwich, 750*l*.; Mr. Joseph Molyneux, Witton, 769*l*. 15s.; Mr. W. Joynson, Northwich, 755*l*. 12s.; Messrs. Vernon & Done, Tarporley, 878*l*. 10s.; Mr. J. P. Cardwell, Altrincham, 739*l*. (accepted); Mr. Tomlinson, Manchester, 890*l*.; Mr. H. J. Bennett, Northwich, 990*l*.; Mr. J. Owen, Bowdon, 769*l*. The architects are Mr. Redford, of Manchester, in conjunction with Mr. Davenport, of Over, near Winsford, Cheshire.

**Preservation of Paste, &c.**—A scientific contemporary states that the decomposition of paste may be prevented by adding to it a small quantity of carbolic acid. It will not then become offensive, as it often does when kept for several days, or when successive layers of paper are put on with paste. In the same way, the disagreeable smell which glue often has may be prevented. If a few drops of the solution be added to ink or mucilage, they will not mould. For whitewash, especially when used in cellars and dairies, the addition of one ounce of carbolic acid to each gallon will prevent mould and the disagreeable odour which sometimes taints milk and meat kept in such places. We have found dextrine, mixed with water, and a few drops of clove-oil, keep for months, while used as paste.

**From Jerusalem.**—Some time ago a rock-hewn passage, leading southward towards the Temple area from the subway at the Convent of the Sisters of Sion, was opened. Mr. Schick has found a continuation of this passage, or rather aqueduct, as it is now proved to be, towards the north, and has traced it from the Convent to the north wall of the city, a little east of the Damascus gate. At this point the aqueduct has been partially destroyed by the formation of the ditch, cut in solid rock, which lies in front of and communicates with the well-known caverns; it is therefore older than these, and can hardly be assigned a later date than that of the kings of Judah. It may also be the "conduit of the Upper Pool," mentioned in Isaiah and the Second Book of Kings.

**Railroad Enterprise in Peru.** — The *New York Evening Express* says: — "The Peruvian Government proposes a railroad 14,000 ft. above the level of the sea. It will connect different parts of the country (by railway and steamboats), the former going over the main ridge and valleys of the Andes, at an elevation of 14,000 ft. above the level of the sea, or 7,000 ft. higher than the highest point of the Sierre Nevadas, crossed by the Central Pacific Railroad, the elevation being within 1,000 ft. of perpetual snow. The combined railway and steamboat communication will cross the continent at its widest point, and M. Meigs, the contractor, has had contracts in this country amounting to over one hundred million dollars."

**Sales at the International Exhibitions.**—The Royal Commissioners for the Exhibition of 1851, although they do not agree with those who believe that the interests of art, or those of the public, would have been injured by the proposed sales of manufactured objects, not in the Exhibition itself, but in the annexes, in accordance with conventions entered into with the French and Belgian commissions, have resolved that, as the French and Belgian commissions have liberally relinquished the rights accorded to them, her Majesty's Commissioners, with the view to reconcile conflicting interests as far as possible, will adopt the rules, as respects sales, laid down for the Exhibitions of 1851 and 1862.

**The Preservation of Victoria Park.**—At a meeting of the Board of Works, Mr. Runtz said it was necessary that the Board should come to a decision at once with regard to the Victoria Park land question. He therefore moved that the Board purchase certain portions of the land about to be sold by the Government at a cost of 20,450*l*. Mr. Newton seconded the motion. Mr. Dresser Rogers, Mr. Alderman Stone, Mr. Lawrence, and Mr. Saunders addressed the Board, and after considerable discussion a resolution was moved that the Government undertake the care of the land so purchased, and include it in Victoria Park. The resolution was carried by a large majority.

**New Goods Warehouses on the Metropolitan Railway.**—In conjunction with the Great Northern and Midland Companies, the Metropolitan are about to erect new goods warehouses between Farringdon-street and Redcross-street in the City, and they are also negotiating with the South Eastern Company for the erection of similar warehouses near West-street, Smithfield. The chairman of the Metropolitan states that in a very short time the sales of surplus lands will enable the company to reduce the capital invested in them by 100,000*l*. He also further states that their rentals from land and other property which they have to let is being considerably increased, and that it was estimated that their surplus property would shortly realise about 80,000*l*. year.

**Sewers in London.** — The St. George's, Hanover-square, surveyor, reporting on the state of the sewers in the parish, says, "I regret to find that in so large a portion of this parish 'the drainage is in many cases highly unsatisfactory.' In the in-wards, sewers flat-bottomed and unsound, ill-shaped, and unnecessarily large, with the advantage of a good fall, are little, if at all, better than those in the out-wards, which, though sound and of better form, yet having a very little fall, are liable to accumulate deposit, which cannot be removed without flushing." The estimate for flushing is 423*l*. 15s. The report was understood to be adopted.

**Paternoster-buildings, St. Paul's.**—Mr. Alfred M. Ridge writes to say that these buildings were erected from his designs, not from designs by the City architect, as stated in our last.

**The Restoration of Warwick Castle.**—A proposal has been made in New York for the formation of an American committee to co-operate with the English committee in the undertaking to find funds for the rebuilding of Warwick Castle. The *New York Tribune*, in an editorial notice of the project, says,—"The formation of a fund to restore the burned portions seems to have originated in a general feeling among Englishmen that the castle was a possession in which the whole nation had an interest; but we may just as well say that it was the inheritance of the whole Anglo-Saxon race; and we, too, may claim our share in the honour of contributing to the costly work of repairing it."

**The Metropolitan Board of Works and the Southern Embankment.**—The Metropolitan Board of Works having declined to include the southern embankment in the Bill which they are about to present to Parliament, having reference to the cost of lighting and maintaining the northern embankment, the Vestry of Lambeth have decided to present a petition to the House of Commons, praying that both embankments may be placed upon the same footing, and that the cost of lighting and maintaining both embankments be equally borne by the whole of the metropolis.

**Fresco-Painting.**—A return to an Order of the House of Commons contains a copy of Reports to the First Commissioner of Works and Public Buildings on the frescoes in the Houses of Parliament. This Report emanates from a committee of artists employed in the decoration of the Westminster Palace, and is signed by Messrs. Cope, Watts, Ward, Armitage, Herbert, F. S. Barff, and E. J. Poynter. These gentlemen agree that, notwithstanding the ill-success which has attended it of late years, the use of fresco-painting ought not to be abandoned. The failure is, it is said, probably due to the want of experience in the method among English artists.

**Improvements at Morecambe.**—The Morecambe Pier is to be greatly lengthened, the works having been let to Mr. Horne for 4,550*l*. The work is to be commenced immediately, and to be completed by the middle of June. The alteration will extend the pier-head 60 yards, making it 100 yards in length. The contractors for the new station at Morecambe have commenced work, and excavations for foundations are now being made. The contractors for the new sea-wall and promenade on the road to Heysham are making satisfactory progress.

**London Association of Foremen Engineers and Draughtsmen.**—The nineteenth anniversary festival of this institution took place on Saturday evening last, at the City Terminus Hotel, under the presidency of Mr. James Howard, M.P., who was supported by Admiral Sir Spencer Robinson, Lord Elcho, Mr. B. Samuelson, M.P., Dr. Tyndall, Mr. J. R. Ravenhill, C.E., Mr. C. B. Vignoles, and several other gentlemen, some of them connected with leading engineering firms. The company numbered nearly 300.

**A Foot Bridge at Cannon-street.**—A few days ago, a footway for passengers by the side of the South-Eastern Railway, crossing the river at Cannon-street, was opened for pedestrians, which provides a new means of communication between the north and the south sides of the Thames. The entrances are from Dowgate-street, on the Middlesex side, and from Clink-street (leading to the Borough Market), on the Surrey side, and the toll charged being one halfpenny, as at Hungerford and Charing-cross. The footway is open from five in the morning until nine in the evening.

**Land Register and Transfer Book.**—A new register-book is proposed by Mr. W. Streeter, barrister-at-law, to include all lands, whether freehold, copyhold, gavel-kind tenure, borough English, and all other land whatsoever in England, "for making land available as a mercantile security, and also for simplifying the registration of the title to real estates; and to serve the purposes of sale and transfer of land, as well by way of absolute ownership as upon trust, or by way of mortgage."

**South Kensington Museum.**—The arrangements for the special loan exhibition of ancient musical instruments at the South Kensington Museum, which will be opened in June next, are now in active progress. The exhibition will include instruments noted for their decorative, archæological, ethnological, or intrinsic technical merits.

**Lost Land.**—The *Stamford Mercury* states that a survey has recently been made at Cleethorpes of land which has "gone to Humber," or been devoured by tidal action upon the Cleeness. It is computed that upon the Humber stone foreshore alone, by throwing up a substantial sea-bank, 500 to 700 acres may be reclaimed at an expense of 10*l*. per acre. Lord Carington is the owner of the frontage. When Domesday Book was compiled, this land extended to a point near to the present mid-channel of the Humber.

**Proposed New City Market.**—A special meeting of the Court of Common Council was held at Guildhall last week, to consider whether it was advisable to erect a new market adjacent to that in Smithfield for the sale of meat and poultry. The scheme was recommended by the Markets Improvement Committee, at a total cost of 167,500*l*., of which 80,000*l*. was for the land. Four petitions were, however, presented against it, and the debate arising upon the subject was adjourned.

**The African Diamond and Gold Fields.**—A shilling "map of the South African republic or Trans-Vaal; showing the newly-discovered gold diggings of the diamond-fields in the Orange River state, adjoining," has been "published by authority, and mapped by Matthew A. Purcell, C.E., 18, Buckingham-street, Strand, London." A detailed map of this new district of country has been much wanted, it seems, and has now been supplied, at great cost and trouble.

**Mining Property in Chili.**—Some of the most renowned copper and silver mines in Chili, the property of the late Mr. Sampson Waters, who realised a large fortune, have lately changed hands through the agency of Messrs. Driver, the auctioneers. They were the whole of the San Pedro, and parts of the Desenbridora copper mines, and shares of the Juana and Colorado silver mines, with valuable plant, and realised upwards of 106,000*l*.

**New Works on the Lancashire and Yorkshire Railway.**—The total amount of share capital to be raised for the new works for which the company are going to Parliament amounts to 1,300,000*l*., and amongst other new stations, and other works proposed to be erected out of this sum are two large new stations, one at Bradford, and the other at Blackburn, in addition to the widening of a long viaduct on the company's line to Liverpool, near Wigan.

**The Railway Bridge in Southwark Street.**—At their meeting last week the St. Saviour's Board of Works authorised the clerk to give notice to the London, Chatham, and Dover Company that if their railway bridge in Southwark-street were not made water-tight within fourteen days, so as to prevent the water from percolating through it as at present, proceedings would immediately be taken against the company by indictment.

**Oxford Architectural and Historical Society.**—The First Evening Meeting will be held on Tuesday, February 27, when papers will be read "On the most important Archæological Discoveries during the past Year, in the Neighbourhood of Oxford," by Mr. J. P. Earwaker, Merton College; and "On the Garford Barrow, near Abingdon, lately opened," by Mr. James Parker.

**Institution of Surveyors.**—By permission of the Council of the Institution of Civil Engineers the Ordinary General Meeting, of Monday, February 12th, was held in the Lecture Theatre of that institution, when the discussion on the Paper, by Mr. E. J. Smith, entitled "Land," was resumed, and, after a lengthy debate, was adjourned to the next meeting, to be held on Monday evening, February 26th.

**Copper Gas-Pipes.**—The *Journal de l'Eclairage* states that on the occasion of a workman cutting through such a pipe with a file, an explosion occurred, by which he was much burnt. It appeared, upon examination, that the pipe was coated with a black matter, which was found upon analysis to be an acetate of copper, liable to explosion between 203 and 248 degrees. The circumstance is not unprecedented.

**Leek.**—To the Congregational church and schools, a new lecture-hall, &c., is about to be added. All the buildings are of stone, in the Early Decorated Gothic style. Mr. Sugden, of Leek, is the architect.

**Asphalte Roadways.**—The Corporation of London have given instructions for Princes-street, Mansion House, to be laid with asphalte, by the Montrotier Asphalte Company, on a substratum of concrete, made with the natural hydraulic cement from Lyme Regis. The enormous traffic in this part of London will prove a crucial test for roadways executed in the manner proposed.

**Winchester Assize Courts.**—The designs for new Assize Courts, Winchester, by Mr. H. T. Wyatt, obtained in a limited competition, are, we believe, to be carried out by Messrs. Hill & Sons. The buildings are Gothic in style, and the cost will be something like 30,000*l*. The old courts will be retained for witnesses, and form part of the general design.

**St. Andrew's Church, Holborn.**—The Church of St. Andrew's, Holborn, is to be decorated under the superintendence of Mr. S. S. Teulon, architect, a sum of 750*l*. having been decided upon by the trustees to be expended. The specified suggestions of Messrs. W. Phillips & Son, of Baker-street, Portman-square, have been accepted for the execution of the work.

**The Liverpool Tramways.**—The corporation have resolved to purchase the tramways within the borough, and to keep the tramway system in their own hands. They are supporting a Tramway Bill to these ends in Parliament, with power to borrow 250,000*l*.

**Sunderland Workmen's Dwellings Competition.**—The second premium was awarded to Mr. Thomas Tillman, of Sunderland.

## TENDERS

For sewer and boundary-wall and gates to land at West Brompton, for the managers of the Metropolitan Asylum District. Mr. John Giles, architect:—

| | Sewer. | Boundary-wall and Gates. |
|---|---|---|
| Aviss & Co. | £2,815 0 0 | £535 0 0 |
| Clarke | 2,658 0 0 | 518 0 0 |
| Wigmore | 2,425 0 0 | 450 0 0 |
| Crockett | 2,370 0 0 | 510 0 0 |
| Marshall | 2,344 0 0 | 529 0 0 |
| Thirst & Co. | 2,321 0 0 | 618 0 0 |
| Killingback | 2,250 0 0 | — |
| Nowell & Robson | 2,165 0 0 | 686 0 0 |
| Keeble | 2,127 0 0 | 605 0 0 |
| Cole | 2,099 3 0 | 707 10 0 |
| Morris | 1,995 0 0 | 715 0 0 |
| Henshaw & Co. (accepted) | 1,993 0 0 | 527 0 0 |
| Potter | 1,903 10 0 | 540 0 0 |

For rebuilding All Saints' Schools, Wandsworth. Mr. John M. K. Hahn, architect. Quantities supplied by Mr. Morris Evans:—

| | | Extra on Internal Brick Facing. |
|---|---|---|
| Dove, Brothers | £2,475 0 0 | £40 0 0 |
| Easton, Brothers | 2,195 0 0 | 15 0 0 |
| Atkinson | 2,148 0 0 | 15 0 0 |
| Parsons | 1,977 15 0 | 65 0 0 |

For the erection of villa residence, stables, and gate-lodge, at Biggleswade, Bedfordshire, for Mr. E. H. Adcock. Mr. F. N. Kemp, architect:—

*Residence.*

| | |
|---|---|
| Smith | 1,950 0 0 |
| Twelvetrees | 1,825 0 0 |
| Kidd (accepted) | 1,785 0 0 |
| Crapper (for plumber's work) | 200 0 0 |

*Stables.*

| | |
|---|---|
| Smith | £1,025 0 0 |
| Foster | 1,000 0 0 |
| Dalby | 950 0 0 |
| Twelvetrees | 880 0 0 |
| Kidd (accepted) | 870 0 0 |

*Lodge.*

| | |
|---|---|
| Kidd | £340 0 0 |
| Smith | 326 0 0 |
| Twelvetrees (accepted) | 322 0 0 |

For alterations and additions to Meyerton House, Hailsham, for Mr. M. Meyer. Mr. R. K. Blessley, architect:—

| | |
|---|---|
| Peerless | £840 0 0 |
| Skinner | 584 0 0 |
| Stonestreet | 565 0 0 |

For alterations and additions to No. 3, Samuel-street, Woolwich, for Mr. Henry Shersby. Messrs. William Gosling & Son, architects:—

| | |
|---|---|
| Hiscock | £311 0 0 |

For alterations and additions to stables, coach-houses, &c., Shooter's-hill, Kent, for Mr. William Barrington Brown:—

| | |
|---|---|
| Hiscock | £306 0 0 |
| Williams | 385 8 10 |
| Fenn & Harwood | 375 0 0 |
| Daniels | 309 13 0 |
| Blackmore & Morley | 309 0 0 |
| Lonergan | 250 0 0 |

For baker's house and three shops, at Dover. Mr. J. Edwin Bolton, architect :—

| | | | |
|---|---|---|---|
| Bourne | £1,170 | 0 | 0 |
| Adcock & Rees | 1,097 | 0 | 0 |
| Tucker | 1,070 | 0 | 0 |
| Richardson | 1,053 | 0 | 0 |
| Humphrey | 1,040 | 0 | 0 |
| Bushell | 975 | 0 | 0 |

For cottage and greenhouses, at Dover. Exclusive of hot-water apparatus. Mr. J. Edwin Bolton, architect :—

| | Cottage. | Greenhouses. |
|---|---|---|
| Parks | £390 | £295 |
| Adcock & Rees | 385 | 295 |
| Richardson | 319 | 269 |
| Humphrey | 277 | 256* |
| Bourne | 276* | 261 |

* Accepted.

For the erection of a villa residence, at Folkestone. Mr. S. Slingsby Stallwood, architect :—

| | | | |
|---|---|---|---|
| Bowley | £1,120 | 0 | 0 |
| Unwin | 986 | 0 | 0 |
| Holdam | 960 | 0 | 0 |
| Brooks & Co. | 930 | 0 | 0 |
| Webster | 875 | 0 | 0 |
| Prebble | 855 | 5 | 0 |
| Newman (accepted) | 820 | 0 | 0 |

For house at Wantage, Berks, for Mr. H. P. Gibbons. Mr. E. Dolby, architect :—

| | | | |
|---|---|---|---|
| F. & E. Johnson | £2,599 | 0 | 0 |
| Gibson, Brothers | 2,538 | 0 | 0 |
| Castle & Co. | 2,400 | 0 | 0 |
| Selby | 2,250 | 0 | 0 |
| Wheeler & Gregory | 2,244 | 0 | 0 |
| G. Jones | 2,215 | 0 | 0 |
| Honour & Castle | 2,194 | 0 | 0 |
| T. Jones | 2,140 | 0 | 0 |

For laundry, kitchen, and bakehouse machinery and fittings, to the new Lambeth Workhouse, Kennington-lane, including all incidental builder's work. Messrs. R. Parris & T. W. Aldwinckle, architects :—

| | | | |
|---|---|---|---|
| Jeakes | £3,757 | 0 | 0 |
| Smith | 3,300 | 0 | 0 |
| Benham (accepted) | 3,217 | 0 | 0 |

For restoration and additions to Jevington Rectory, Sussex. Mr. H. Evean Rumble, architect :—

| | | | |
|---|---|---|---|
| Avis | £2,493 | 0 | 0 |
| Peerless (accepted) | 2,425 | 10 | 0 |

For finishing eight houses (now in carcass), at Charlton, Kent, for Capt. Davis. Messrs. Dean, Son, & Matthams, architects :—

| | | | |
|---|---|---|---|
| Gough | £2,405 | 0 | 0 ! |
| Welch | 2,200 | 0 | 0 |
| Roddam | 2,165 | 0 | 0 |
| Wood | 2,050 | 0 | 0 |
| Phillips | 1,945 | 0 | 0 |
| Dover & Co. | 1,899 | 0 | 0 |
| Blackmore & Morley | 1,880 | 0 | 0 |
| Stenteford | 1,680 | 0 | 0 |
| Waterson & Co. | 1,600 | 0 | 0 |
| Button | 1,590 | 0 | 0 |
| Day | 1,585 | 0 | 0 |
| Stovell | 1,487 | 0 | 0 |
| Hull (accepted) | 1,475 | 0 | 0 |
| Tripp | 1,395 | 0 | 0 |
| Piggott | 1,390 | 0 | 0 |
| Tyler | 1,384 | 0 | 0 |
| Dennis | 1,337 | 0 | 0 |
| Meadows | 990 | 0 | 0 ! |

For restoring Saxmundham Church, Suffolk. Mr. R. M. Phipson, architect :—

| | Nave, &c. | Chancel. | Porch. |
|---|---|---|---|
| Cornish | £1,587 | £350 | £163 |
| Smyth & Son | 1,369 | 269 | 161 |
| Luff | 1,359 | 212 | 167 |
| Carter | 1,359 | 200 | 120 |
| Tooley | 1,275 | 290 | 120 |
| Grimwood (accepted) | 1,175 | 300 | 106 |

For relief office and dispensary at East-street, Marylebone, for the parish of Marylebone. Mr. H. Saxon Snell, architect :—

| | Buildings in York-court. | House in East-street. | If both erected under one contract. |
|---|---|---|---|
| Lathey, Brothers | £2,993 | £1,523 | £4,516 |
| Chappell | 2,984 | 1,510 | 4,494 |
| Carter & Son | 2,763 | 1,432 | 4,195 |
| Howard | 2,703 | 1,367 | 4,070 |
| Crockett | 2,650 | 1,390 | 4,040 |
| Staines & Son | 2,736 | 1,296 | 3,996 |
| Gibson, Brothers | 2,587 | 1,347 | 3,900 |
| Manley & Rogers | 2,627 | 1,240 | 3,775 |
| Hearle | 2,565 | 1,197 | 3,694 |
| Largan | 2,399 | 1,051 | 3,450 |
| Saul | 2,318 | 1,188 | 3,447 |

*For alterations at the "Anchor and Hope" Public-house, Chelsea.*—The lowest tenderer states that in last week's list one tender was omitted, namely, that of Mr. Simpson (418*l.*), who prepared the plans and specifications.

## TO CORRESPONDENTS.

J. D.—J. T.—Mr. C.—R. P.—T. W. A.—T. C.—H. S. S.—W. S.—M. M.—E. W. L.—T. W. S.—Messrs. D.—M.—J. J. L.—J. G.—W. H.—E. J.—C. C. H.—J. R.—S. W.—J. E. B.—G. L. B.—T. H.—G. B. E.—W. T.—Inquirer.—J. R.—Admiral O.

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests of course with the authors.

**Bath and other Building Stones of Best Quality.**—RANDELL, SAUNDERS, & CO. Limited, Quarrymen and Stone Merchants. List of Prices at the Quarries and Depôts, also Cost of Transit to any part of the United Kingdom furnished on application to
Bath Stone Office, Corsham, Wilts.—[ADVT.]

**Ashton & Green, Slate and Slab Merchants and Quarry Agents.**—Shippers, Merchants, and Contractors furnished with Price-lists of every description of ROOFING and MANUFACTURED SLATE, Railway-rates, &c. Agents for London and Country for the Sale of the celebrated WHITLAND ABBEY GREEN SLATES. Drawings and Prices of A. & G.'s RED RIDGE TILES, specially prepared for use with these Slates, on application.—Offices and Show-rooms, 14 and 15, Bury-street, St. Mary Axe, London, E.C.—[ADVT.]

**Turret Clocks.**—Mr. Streeter, 37, Conduit-street, London, W., Manufacturer of Turret Clocks (with gravity or dead-beat escapement) for Churches and Public Buildings. Estimates and plans on application. Price :—Village clocks, from 15*l.*; church clocks, from 40*l.* The wheel-work throughout these clocks is of best hard brass or gun-metal. No iron wheels used. Timekeeping and durability guaranteed. Wholesale Entrance—Burlington Steam Works.[ADVT.]

**Architects, before committing themselves** to any system of Warming, should send to TRUSWELL, BROTHERS, & HOLDEN, 100, Nottingham-street, Sheffield, for a prospectus of their Improved Patent Hot-Air Apparatus.[ADVT.]

NO PAINT—NO RUST.
GREAT DISCOVERY.
BRONZED IRON.
BY ROYAL LETTERS PATENT.
TURNER & ALLEN
(Sole Patentees),
ART-FOUNDERS, ENGINEERS, MERCHANTS, AND CONTRACTORS,
201, UPPER THAMES STREET, LONDON, E.C.

Extract from Paper read at the Royal Institute of British Architects, December 4, 1871, by Henry Carr, esq., C.E. :—

"The great desideratum of the day, no doubt, is some means of permanently protecting iron from rust : this is now said to be done by Messrs. Turner & Allen, of 201, Upper Thames-street.

If the process of coating iron with copper can be successfully carried out on a large scale, it will be one of the greatest boons of our time."

J. L. BACON & CO.
MANUFACTURERS OF
IMPROVED HOT-WATER APPARATUS,
FOR WARMING AND VENTILATING
Private Houses, Churches, Schools, Hospitals, Manufactories, Greenhouses, &c.

OFFICES AND SHOW-ROOMS :—
476, NEW OXFORD STREET, London, W.C.
WORKS :—FARRINGDON ROAD.
Publishers of a Pamphlet on "Hot-Water Heating."

TO BUILDERS.—TENDERS are invited for a NEW HOTEL, to be built at Kirkley-next-Lowestoft, containing about thirty rooms. Plans and specifications may be seen on or after FEBRUARY 26th; and Tenders are to be sent in by TWELVE o'clock on FRIDAY, the 8th day of MARCH.
The lowest or any Tender will not necessarily be accepted.
GEO. GLOVER, Architect.
Lowestoft, February 20, 1872.

TO BUILDERS — TENDERS are REQUIRED for the ERECTION of TWELVE HOUSES at East Acton. Plans may be seen and quantities obtained at the Offices of Mr. JOHN B. BADOCK, Architect and Surveyor, 7, Staple-inn, Holborn, on the 28th and 29th FEBRUARY, and the 1st MARCH. 5*s.* to be deposited for the quantities, to be returned when Tenders are delivered. The lowest or any Tender not necessarily accepted.

TO BUILDERS.—The Directors of the Lichfield Brewery Company are desirous to receive TENDERS for the ERECTION of a NEW BREWERY at Lichfield. The drawings and specification can be seen at the Offices of the Company, or at the Architect's, Mr. GEORGE SCAMELL, 18, Great George-street, Westminster, on and after MONDAY, the 26th inst. Quantities will be supplied, price two guineas (which will be returned on receipt of a bonâ fide Tender), and copies may be obtained from the Surveyors, Messrs. CURTIS, 8, Union-court, Old Broad-street, London. Tenders, endorsed "Tender for Erection of a New Brewery," to be sent in, addressed to the Secretary, on or before THURSDAY, the 7th day of MARCH, 1872.
The Directors do not bind themselves to accept the lowest or any Tender.
JOHN GILBERT, Secretary.
Lichfield, 20th February, 1872.

TO BUILDERS.—MOSS HALL ESTATE, FINCHLEY.—TENDERS WANTED, to FINISH the Remaining HOUSES on this Estate. Full particulars, specifications, &c. to be seen at the Estate Office, 1, Alexandra-grove, on and after MONDAY, the 26th inst. Security required, with shortest time for completion. Tenders to be addressed to S. G. care of Messrs. Heath & Parker, Solicitors, 12, St. Helen's-place, E.C. up to the 1st of MARCH.

TO BUILDERS.—The Corporation of Carnarvon are prepared to receive TENDERS for the RESTORATION of the Guildhall.
Drawings and specifications may be examined at the Office of Mr. J. THOMAS, Architect, Castle-square, Carnarvon. Tenders to be delivered at the Borough Surveyor's Office, sealed and addressed "Tenders for Guildhall Restoration," on or before SATURDAY, the 2nd day of MARCH. The Corporation do not bind themselves to accept the lowest or any Tender.

TO BUILDERS and CONTRACTORS.—Persons desirous of TENDERING for the ERECTION of the BRISTOL and WESTERN COUNTIES RACE STAND and OFFICES at Upper Knowle, Bedminster, near Bristol, may see the Plans and Specifications of the Work at the Office of Mr. S. H. HYDE, 50, Queen-square, Bristol. Tenders to be sent in addressed to "The Bristol and Western Counties Racecourse Company (Limited)" on or before MONDAY, the 4th of MARCH next. The lowest or any Tender will not necessarily be accepted, and no payment will be made for any Tender sent in. CLARK & HOLLAND, Architects, Newmarket.
Feb. 13th, 1872.

TO BUILDERS and OTHERS.—TENDERS are required for the ERECTION of a YEOMANRY DRILL HALL, with corrugated iron roof, at the Star Tavern, No. 45A, Peascod-street, Windsor. Apply to P. J. BYRNE, Esq. Architect and Surveyor, 4, Frances-road, Windsor, where the plans may be inspected and quantities supplied, on deposit of 10*s.* 6*d.* to be returned on receipt of a bonâ fide Tender.—Tenders addressed to Mr. A. WILSON, 45, Peascod-street, Windsor, on or before the 4th day of MARCH, 1872, endorsed "Tender for Drill Hall."

TO BUILDERS. — Builders desirous of TENDERING for the REBUILDING in part and for certain ALTERATIONS at the Vicarage House, Canewdon, near Rochford, Essex, may inspect the drawings, specifications, and conditions at the Vicarage, on and after the 24th inst.
Tenders for the work are to be forwarded to the Vicarage, addressed to the Rev. T. A. MANING, not later than the 18th of MARCH next.
The lowest or any Tender will not necessarily be accepted.
GEORGE WOOD & SON,
Solicitors, Rochford, Essex.
February 19th, 1872.

TO CONTRACTORS. — BUILDERS wishing to TENDER for the ERECTION of a MANSION at Treborth, near Bangor, in the County of Carnarvon, for R. Davies, esq. M.P. can see the plans and specifications at Messrs. HUGHES & CO.'S Office, Menai Bridge, on and after the 1st day of MARCH, between the hours of NINE a.m. and SIX p.m. Tenders to be sent in on or before the 25th day of MARCH, to Messrs. HUGHES & CO. The lowest or any other Tender will not of necessity be accepted. Any further particulars may be obtained from
R. G. THOMAS, Architect, Menai Bridge.
February 12th, 1872.

TO CONTRACTORS.—The Directors of the Louth Water Company are prepared to receive TENDERS for the CONSTRUCTION of a RESERVOIR, ENGINE and BOILER HOUSE, and other Works; also for the Supply and Laying of Water Mains, Distribution Pipes, Valves, &c. for the Supply of the Borough of Louth with Water.
A printed copy of the schedule of quantities and specification can be obtained, and the contract drawings inspected, at the Offices of Messrs. SHELFORD & ROBINSON, 7, Westminster Chambers, S.W. the Engineers of the Company, on the payment of thirty shillings.
Tenders, to be addressed to the Secretary of the Company, WILLIAM HYDE, Jun. Esq. Louth, Lincolnshire, will be received up to the 6th of MARCH. The Directors do not bind themselves to accept the lowest or any Tender.

TO CONTRACTORS. — SCOTSWOOD, NEWBURN, and WYLAM RAILWAY. — Notice is hereby given, that the Directors are prepared to receive TENDERS for the CONSTRUCTION of the FIRST SECTION of the above RAILWAY from Scotswood to Newburn, consisting of a double line of Railway, 2¼ miles in length. Plans, sections, drawings, and specifications may be seen and schedules of quantities obtained on and after MONDAY, MARCH 4th, 1872, at the Offices of the Engineers, Messrs. G. A. HARRISON and WM. GEO. & H. LAWS, Central-buildings, Grainger-street West, Newcastle-upon-Tyne. Sealed Tenders, addressed to the Directors, and marked "Scotswood, Newburn, and Wylam Railway," "Tender for No. 1 Contract," to be sent to the above Offices before noon on THURSDAY, MARCH 14th, 1872. The Directors do not bind themselves to accept the lowest or any Tender.
Newcastle-upon-Tyne, February 19th, 1872.
WM. COCKBURN, Secretary.
N.B.—The plans, &c. for the Second Section from Newburn to Wylam, 4 miles in length, will be ready shortly.

PARISH of CHELSEA.—Notice is hereby given that the Vestry of this Parish will meet at the Vestry-hall, King's-road, on MONDAY, the 4th day of MARCH proximo, at SIX o'clock in the evening, to receive TENDERS for the SUPPLY and EXECUTION, from the 26th March, 1872, to the 25th March, 1873, both days inclusive, of the following ARTICLES and WORKS :—
Scavengers' Brooms.
*Scavenging and Watering.
*Scavenging, Watering, and Removing Dust, &c. Kensal New-town.
*Cartage and Horse Hire.
*Collection and Removal of the Dust, Ashes, &c.
*Street Lamp-post Fixing, and the Supply and Fixing of Lanterns, Fittings, &c.
*Coals and Coke.
*Flints.
*Granite, of different kinds, broken.
*Do. do. do. for delivery at Kensal New-town.
*Mason's and Pavior's Work and Materials.
*Red Gravel Hogging.
*Gravel, Shingle, and Gravel Hogging.
*Bricklayer's Work, Sewers and Drains.
Supply of Water, and all needful Stand-posts, Pipes, Valves, &c. for Watering the Roads.
Supply of Water, and do. do. Kensal New-town.
The Tenders (except those for the supply of water, &c. for watering the roads) are to be upon printed forms, which, with further particulars, may be obtained, at this Office, and samples of the brooms, lamp-post lanterns, &c. required may be seen at the Surveyor's Office, here, daily, between the hours of TWELVE and ONE. The printed forms of Tender for bricklayer's work, sewers and drains, has specification and schedules attached, and is only to be had upon payment of a deposit of ten shillings.
The Vestry reserve to themselves the right of making special contracts in any of the above trades and for any of the above articles and works, if they shall see fit, and do not bind themselves to accept the lowest or any Tender.
The Tenders are to be delivered sealed, addressed "To the Vestry of the Parish of Chelsea," and endorsed "Tender for ——" by or before TWO o'clock on the said 4th MARCH proximo.
Each Tender must be enclosed in a separate envelope.
All contract deeds will be prepared at the expense of the Vestry.
If any article or work be not supplied or executed to their satisfaction, the Vestry will obtain the supply or execution of other articles or works of other parties at the expense of the contractor. Parties Tendering must appear personally at the time the Tenders are opened.
By order, CHARLES LAHEE, Vestry Clerk.
Vestry-hall, King's-road, S.W. February, 1872.
* Each person Tendering for these services, supplies, or works, is required to bring (but not to enclose) a Bank note, value ten pounds (10*l.*) with each Tender, as a guarantee of good faith, which said Bank note will be returned should the Tender not be accepted. The notes brought with Tenders subsequently accepted will be retained until the contract deeds are duly executed, or until the contracts are otherwise completed.